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AIR TRANSPORTATION

Vol. 29, No. 6

THE AIR MAGAZINE FOR THE BUSINESS EXECUTIVE

December, 1956

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Demands



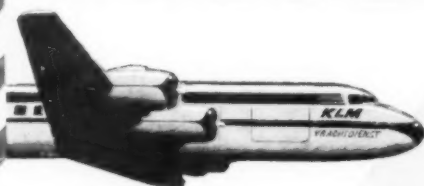
Salk polio
vaccine to Norway
... via SAS.



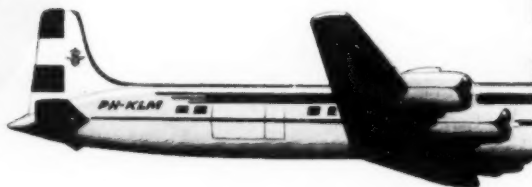
Life-saving
drugs to
Guatemala
... via TACA.

◀ Antibiotics
for Hungarian
refugees ...
via Swissair.

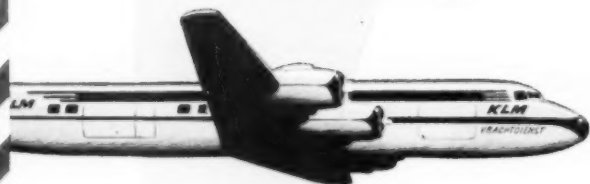
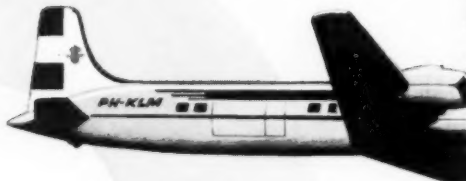




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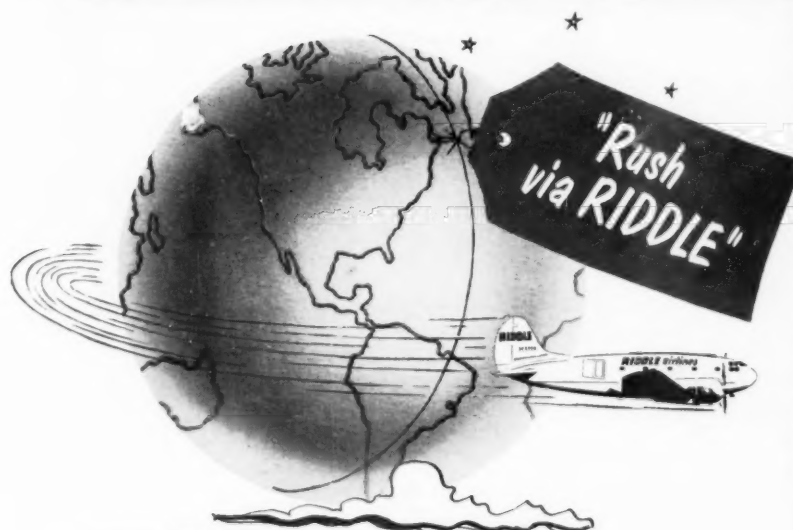
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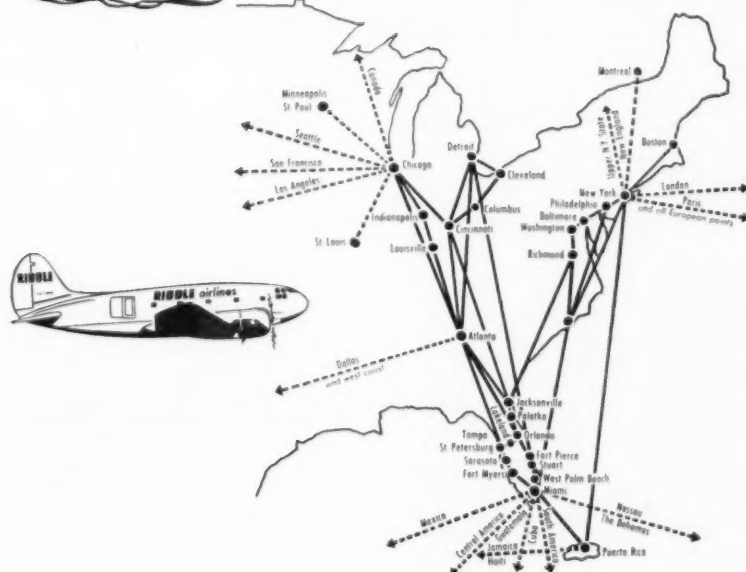


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AIR TRANSPORTATION, published once each month, thoroughly covers the entire air cargo industry for the benefit of all those engaged in shipping and handling domestic and international air freight, air express, and air parcel post, as well as using the domestic and international air mail services. Included in **AIR TRANSPORTATION'S** wide coverage are: air shipping, cargo plane development, rates, packaging, materials handling, documentation, air cargo terminal development, insurance, routing, interline procedures, new equipment, commercial airlines, military air transport service, air freight forwarders, and business flights.

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John F. Budd
Editor and Publisher

Editorial	Advertising
Richard Malkin	Frank R. Brine
Executive Editor	Asst. to Publisher

L. R. Hackney, Contributing Editor

Dr. W. L. Grossman, Contributing Editor

Langdon P. Marvin, Jr.,
Contributing Editor

K. H. Lyons, Business Manager

William E. Budd,
Assistant Business Manager
(on Military leave)

Frank W. Budd, Circulation Manager

Viola Castang, Special Service Department

Keith H. Evans & Associates
West Coast Advertising Representative
3723 Wilshire Blvd., Los Angeles 5, Calif.
Phone: DUinkirk 8-2981

J. B. Tratsart, Ltd.
United Kingdom Sales Representative
779, Harrow Road
Sudbury, Wembley
Middlesex, England

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Vol. 29, No. 6

December, 1956

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Net circulation of this issue (not including distribution to advertising agencies, advertising prospects, public relations firms, newspapers, and magazines; special distributions for promotional purposes; and cash sales) totals 9,676 copies. Gross circulation is more than 10,250 copies. This issue will be received by a minimum of

8,585 shipping and business executives including:	345 airline executives and other personnel
5,349 traffic managers	126 military establishments and personnel
1,008 presidents; partners; proprietors	70 trade organizations
127 vice presidents	259 Federal, state and city government departments
104 secretaries; treasurers; controllers	93 educational institutions and students
538 freight forwarders	68 business and public libraries
331 export-import managers; export-import merchants	42 foreign governments
278 purchasing agents	44 aircraft and aircraft equipment manufacturers
681 aviation department heads of industrial firms	44 miscellaneous
169 general and sales managers	

The most recent study of *Air Transportation's* circulation has shown a pass-along of each issue to 3.45 persons, or a total readership of 4.45 persons per copy. On this basis, this issue of *Air Transportation* will be read by a minimum of 43,058 persons. The latter figure does not include readers not classified under "net circulation."

Slick Relocates in Dallas

DALLAS—Slick Airways, scheduled all-cargo carrier, which originated a decade ago in San Antonio, Texas, then switched its headquarters to Burbank, California, is returning its general executive offices to the Lone Star State—in Dallas.

President Robert J. Smith asserted that the decision to relocate the executive offices to Dallas "was arrived at after careful review and consideration of the effect of such a move on the future success of Slick Airways and on the personnel involved." Principal reason for relocating is improved communications with Slick's stations and better systemwide supervision. Smith pointed out that "location in the Central Time Zone brings all points of the far-flung Slick Airways system much closer together time-wise, both in terms of telephone-teletype communications and in executive travel."

Red Cargoes Boycotted

NEW YORK—Air imports and exports of the Soviet Union and its satellites are being boycotted at New York International Airport as the result of an action by the Transport Workers Union. The decision, approved by the TWU's international executive board, was taken "in protest against Russia's inhuman treatment of the Hungarian people and its warlike interference." The union will handle only Red Cross medical supplies.

There is no clear picture as to how effective this boycott is. Freight going directly to and from Russia and its satellites normally are not great in volume. It is known, however, that occasionally shipments ultimately reaching the boycotted countries are consigned to West European shipping agents who take care of the on-forwarding.

Von Balluseck Retires

THE HAGUE—Felix von Balluseck, deputy president and head of KLM's traffic and sales directorate, will resign December 31, it was announced by General I. Aler, president of the airline. Mr. von Balluseck, who has reached the company's retirement age, will at the request of the board of directors and management, continue in an advisory capacity for another year. He is succeeded by M. J. van der Ploeg, deputy president and head of the finance and accounts directorate.

Vice president J. C. van der Kloot will head the sales function in the traffic and sales directorate, assisted by three other vice presidents: B. G. van Os van Delden, J. F. van Oldenborgh, and D. Sij de Boer. Vice president V. H. L. Dubourcq, general manager for the Caribbean area, has returned to Holland to head up KLM's es-

British Trade Fairs

Jan.	
1-12	3rd National Boat ShowLondon
12-18	Harrogate International Toy FairHarrogate
21-31	Furniture Trade ExhibitionLondon
22-Feb. 1	5th International Packaging ExhibitionLondon
29-31	13th Amusement Trades ExhibitionLondon
Feb.	
4-8	8th Gifts and Fancy Goods FairBlackpool
4-8	Stationery Trade FairBrighton
11-15	Stationery and Book Trades FairLondon
18-22	Leather Goods Industries FairLondon
18-22	National Nylon Fair.....London
25-Mar. 1	3rd Hardware Trades ShowLondon
25-Mar. 1	British Toy Fair.....Brighton
Mar.	
4-8	4th National Men's and Boys' Clothing Trade FairLondon
4-8	4th National Men's Fabric FairLondon
4-8	1st National Carpet and Floor Coverings Trade FairLondon
4-8	4th Household Textiles and Soft Furnishings FairLondon
5-30	Ideal Home ExhibitionLondon
April	
1-5	2nd National Industrial Textiles FairLondon
9-11	14th Radio and Electronic Component ShowLondon
11-17	British Photo Fair....London
12-15	London Audio Fair....London
May	
6-17	British Industries FairBirmingham
7-17	Instruments, Electronics and Automation ExhibitLondon
28-June 1	1st International Clothing Trades ExhibitionLondon

tabishments outside of the country. Beginning next year, A. H. van Gelder, vice president-finance, will be in charge of the finance and accounts directorate as acting executive vice president-finance and accounts.

Carter L. Burgess Is Named TWA President

LOS ANGELES—Assistant Secretary of Defense Carter L. Burgess, whose resignation was accepted by President Eisenhower early this month, will take over the presidency of Trans World Airlines "following completion of government projects in which he is currently engaged." Burgess was named by Howard Hughes, president and sole owner of TWA's parent company, Hughes Tool Company.

The appointment fills an important airline office which had remained vacant for 11 months since the death of Ralph S. Damon on January 4, 1956. Damon had served as TWA's head from 1949 until the time of his sudden death.

Burgess, who turns 40 on the last day of the year, now becomes the youngest president of a major airline. He is not a newcomer to TWA. In 1946-47 he served as assistant to the president of Transcontinental & Western Air, Inc., predecessor to Trans World Airlines. From 1947 to 1953 he was director of administration for General Aniline & Film Corporation, following which he was assistant to the president of the University of South Carolina.

Prior to his appointment to the Defense Department in 1954, Burgess held posts as consultant to President Eisenhower on White House Staff Organization and on Cabinet and Staff Organization, acting staff director of the Secretary of Defense Committee on Fiscal Organization, and staff director of the Secretary of State's Public Committee on Personnel.

During World War II he rose to the rank of colonel. He was secretary of the General Staff for SHAEF and was administrative secretary at the historic Casablanca Conference in 1943.

SAS Host to West Coast Air Freight Forwarders

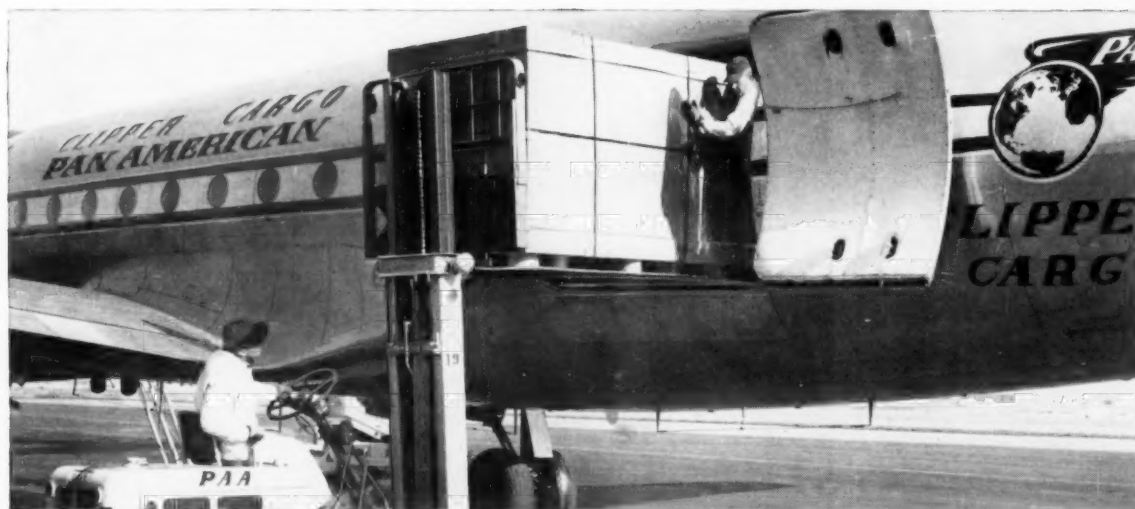
LOS ANGELES—Scandinavian Airlines System last month played host to West Coast air freight forwarders and their major accounts to mark the second anniversary of SAS' transpolar service linking the West Coast and Europe. Among those doing the honors for the airline were Tore H. Nilert, president; Warren Kraemer, vice president; and Anker Palvig, cargo manager for the United States. Nilert paid tribute to the forwarding profession for their "splendid cooperation in making the SAS Sky-Travel Service an outstanding success."



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PAGE 8—AIR TRANSPORTATION—*Air Commerce*

Mailbag Memos

We have found this magazine to be most informative and valuable from the standpoint of the latest developments in ground handling equipment and aircraft concerning the movement of cargo. Personally, I read each issue from cover to cover in an attempt to keep abreast of the rapid advancements made by industry in this respect. The one copy is then placed in our VIP Lounge for their convenience. I have received several compliments on the availability and excellent coverage of this publication from our VIP travellers.

Major Robert J. Cowin
OIC Traffic
1614th Support Squadron
Atlantic Division, MATS

* * *

The Swiss story you published in your September issue is one of the finest I have had the pleasure to read in a long while. I want also to congratulate you on the consistently fine job *Air Transportation* is doing in its field.

B. B. Rager
Miami, Florida

* * *

It will be appreciated if you can inform me of the names of the leading carriers of domestic air freight in the years 1953 through 1956.

Alvin Reisin
New York, N. Y.

Obituaries

Two aviation veterans passed away last month—Edward G. Bern, vice president-sales and traffic of Panagra; and Richard M. Rummel, administrative assistant to the vice president and assistant to the president of United Air Lines.

Bern started his career in aviation while he was in the army and became a flier in 1917 during World War I. He established his own flying service in 1921, and while president of KC Airways he published the first printed air service schedule in America. In 1934, while president of Columbia Airlines, he introduced the practice of offering discounts on round trips. Bern served as a vice president of American Airlines and Peruvian International Airways prior to joining Panagra in 1949. During World War II he served as general manager of the Hughes Aircraft Company.

Rummel, a former aviation editor of *The Portland Journal*, joined United as district publicity manager at Seattle in 1932. Nine years later he transferred to United's executive headquarters at Chicago. In 1944 he was elevated to the post of assistant director of publicity, and in 1951 director. Earlier this year he was appointed administrative assistant.

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SERVICES

Domestic

Aaxico: All-cargo service between New York, Atlanta and New Orleans was inaugurated last month with C-46 airfreighters. According to Ollie Stern, vice president-sales, Aaxico has through international rates with Pan American World Airways and TACA Airways to Central and South America.

Allegheny: Direct air services between Detroit and Erie and nine other communities in Pennsylvania, New York and Delaware opened December 1. The extension of Allegheny's New York-Erie and Atlantic City-Philadelphia-Erie route segments to Detroit enables the airline to provide one plane services between Erie, Bradford-Olean, Williamsport, Lancaster, Pennsylvania; Jamestown, New York; Wilmington, Delaware; and Detroit. There are additional flights between Detroit and Wilkes-Barre-Scranton and Harrisburg.

Western: Chadron, Nebraska has become the 47th station on WAL's system. Daily service was inaugurated several weeks ago.

International

Avianca: Miguel Pombo, United States regional manager, reports that the Colombian carrier has increased its daily *Super-G Constellation* service from New York to Jamaica to nine flights a week.

BOAC: Effective December 1 the fol-

lowing schedules went into effect: New York-Nassau (first class), daily; New York-Montego Bay-Kingston, Jamaica (first class), weekly; New York-Nassau-Montego Bay-Kingston (tourist), twice weekly. During the Christmas season 15 extra round-trip flights will be operated between New York and Bermuda. A first-class flight between New York and Montego will be added on January 25 . . . The British airline resumes *Viscount* service between Miami and Nassau this month. This service will be on a three-day basis.

Lacsa: Service between Panama and San Juan has been increased to two flights a week. Departures from Panama are every Friday and Monday; from San Juan every Saturday and Tuesday.

SAS: Within the next few months the Scandinavian carrier will inaugurate a one-stop service which will link Copenhagen and Tokyo. DC-7C transports will be used on the new service. Flying time between Copenhagen and Tokyo will be about 30 hours. The single stop, for refueling, will be made at Anchorage, Alaska. The new transpolar route will slash travel distance between the two cities to approximately 7,800 miles and will be the final link in SAS' round-the-world routes.

Sabena: The Belgian airline's second modified Douglas DC-6A, which transports up to 9,000 pounds of freight and 38 passengers, is now in regular service across the Atlantic. Augmenting the first DC-6A departure from Idlewild every Thursday, the second airliner leaves every Saturday at 3 p.m.

Seaboard & Western: The transatlan-

tic all-cargo carrier, which recently increased its frequency to six flights a week in each direction (Monday through Saturday), was slated to make another change as this issue went to press. The two *Super Constellation* and four DC-4 flights will be replaced by five *Super Constellations* and one DC-4. This, said Seaboard, will give shippers the fastest service across the North Atlantic.

Air Express International:

A fourth airline—Continental Air Lines—has signed a cooperative agreement with AEI. Cities covered by the new agreement are Albuquerque, New Mexico; Dallas, El Paso, Fort Worth, Houston, and San Antonio, Texas; Oklahoma City and Tulsa, Oklahoma; and Wichita, Kansas. Single airwaybill service from these cities to overseas destinations were made available to shippers beginning November 18. Alvin B. Beck and Stanley Vernoy, AEI vice president and general traffic manager respectively, are scheduled to tour the Southwest area with CAL officials to set the ball rolling. The big freight forwarding firm has similar agreements with United Air Lines, Capital Airlines and Mohawk Airlines.

In a recent report on the traffic of movie film, Beck recently revealed that AEI is shipping an average total of five tons per month to Rome, London and Paris, the three largest receivers of American movie

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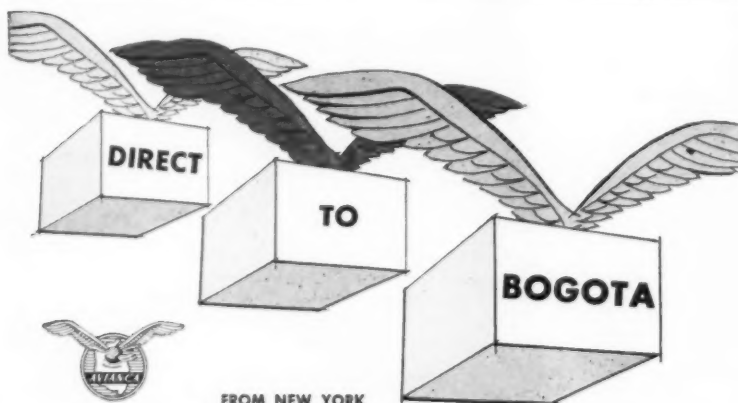
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film. Following in volume are Beirut, Brussels, Geneva, Milan, Stockholm, Copenhagen, Havana, Caracas, Singapore, Tokyo, Hongkong and Manila. The two-way traffic of a few years ago is now almost gone, Beck said—this because most foreign countries now have their own processing plants. However, what has been lost in return film shipments, "we have made up on the shipment of processing chemicals from this country to Europe and the Orient."

Airborne Freight Corporation: The appointment of Publicity Affiliates of San Francisco to represent Airborne in publicity and public relations matters has been announced by John D. MacPherson, president of AFC.

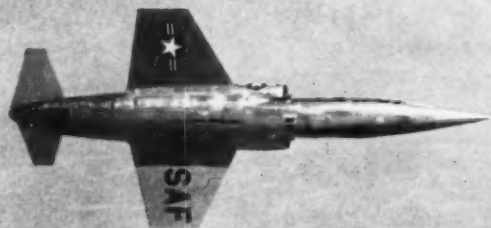
Emery Air Freight Corporation: The National Association of Investment Clubs recently named Emery as the Growth Company of the Year at its sixth annual convention in Detroit.

Two-way mobile radio equipment has been installed in Emery trucks in the Metropolitan New York area. According to John H. Wallis, assistant vice president in charge of communications, the installation "means that customers will get in faster service than at present, for there will be instantaneous contact at all times between drivers and dispatchers." It is planned to speed pickups in the New York area by radioing instructions to drivers. It will also make possible to rush the exact time of delivery to inland shippers.

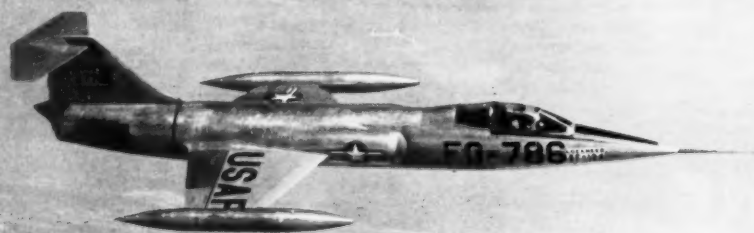
RATES
An expectancy of from seven to 10 million tons of new air cargo traffic during 1957 as a result of the new commodity rates recently agreed upon by the North Atlantic IATA carriers was expressed by Arthur V. Norden, executive vice president of Seaboard & Western Airline, at a meeting of the New York Society of Security Analysts.

HANDLING & PACKAGING
According to C. J. Carney, Jr., managing director of the Society of Industrial Packaging and Materials Handling Engineers, the National Industrial Packaging and Handling Exposition of 1957 which it is sponsoring will be larger by 50,000 square feet of exhibit space in Atlantic City's Convention Hall. Date: October 28-31. The 1957 exposition will emphasize "what's new and how to do it in industrial packaging, package handling, transportation, and relationship of all three to distribution." Carney stated that "this is the first time a national exposition has placed emphasis on the complete distribution system."

H. H. Murray, cargo services manager of British European Airways, visited New York for a week last month. Purpose: to investigate cargo-handling procedures on this side of the Atlantic for possible application at BEA's facilities. It is understood Murray returned to London quite satisfied that BEA's methods are on a par with those shown here. Among the direct and indirect carriers visited by Murray were American, BOAC, Pan Am, United, Emery, Shulman, and United Parcel. He also studied methods employed by Greyhound Bus and the East Side Air Terminal.



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Originally developed for the U.S. Air Force as a day/night air superiority fighter, the Lockheed F-104 *Starfighter* is about to become operational with the Air Defense Command—and soon thereafter with the Tactical Air Command.

An exciting aircraft to fly, the F-104 flashes through the sound-barrier routinely, without a tremor—and possesses a

responsiveness and stability unmatched by many planes of less spectacular speed.

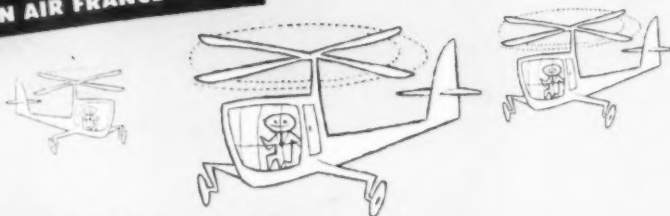
In ease-of-maintenance, too, the F-104 is outstanding. Its unique basic design incorporates many advanced features that reduce on-the-ground time and costs—thus adding extra hours of vital flying time for the *Starfighter* to defend our nation against attack by any aggressor.

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LOCKHEED Aircraft Corporation, Burbank, California

DECEMBER 1956—PAGE 13

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CONGRATULATIONS

U. S. Airlines

Aaxico: Earl Yates and Douglas W. McIlhenny, both formerly with Delta Air Lines, appointed to district sales managerships at the respective cities of Atlanta, Georgia and New Orleans, Louisiana.

American: Ben E. Sherwood, manager of mail and express, elevated to the position of director-Air mail and air express. He has been with AA for two decades.



**Drotning
Northwest**



**Sherwood
American**

Eastern: Maurice B. Westphal, sales manager at Miami, promoted to manager of the Atlantic Division.

Northwest: Phillip T. Drotning, former newspaperman and executive secretary to Governor Walter J. Kohler, appointed vice president-public relations.

Pan American: Sydney R. Chichester, cargo sales superintendent of the Latin American Division, appointed district traffic and sales manager at Colon . . . James Montgomery, passenger sales manager—U. S., named to the newly-created position of director-sales development . . . William Randall Johnson, Jr., airport traffic manager at Port-au-Prince, Haiti, transferred to the same position at Maiquetia, airport for Caracas, Venezuela.



**Rowe
Panagra**



**Chichester
Pan Am**

Panagra: Roger V. Rowe, sales representative in Buenos Aires since 1952, upped to district sales manager in Lima, Peru . . . Peter Horbye and Dudley Sparks appointed sales representatives in the respective cities of Buenos Aires and Rio de Janeiro.

TWA: Cyril L. Howard, with the airlines since 1950, promoted to cargo sales manager in the United Kingdom . . . Stanley P. Phillips now serving as district sales manager at Tucson, Arizona . . . Byron F.

(Continued on Page 28)

After three years of intensive research conducted by Dr. Howard T. Lewis, Professor of Marketing at the Harvard Business School, the highly significant report, *The Role of Air Freight in Physical Distribution*, has been made available. The following outline of its salient findings and conclusions is *must* reading.

A Review of the Book . . .

The Role of Air Freight In Physical Distribution

Prepared By

LEONARD G. HUNT

Executive Vice President, Emery Air Freight Corporation

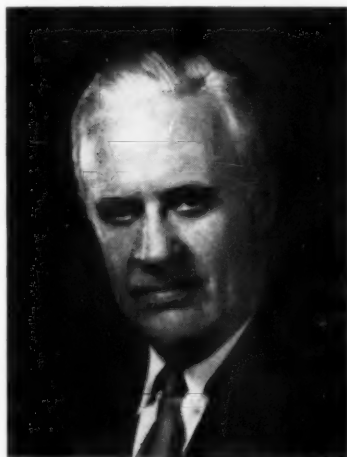
Introduction

AIR freight, newest and fastest of all forms of cargo transportation, has had a dynamic growth. Yet one major obstacle has constantly stood in the way of its progress. That obstacle is the cost of air freight relative to the cost of surface carriage. Air freight is comparatively expensive for carriers to provide and for shippers to use. At the same time, low cost is the primary consideration of shippers in the purchase of freight service.

Airlines and other air carriers have maintained that the speed of air freight can produce savings in industrial production and distribution costs exceeding in amount the premium in air freight cost. It has been a good sales point, but there has not been authoritative independent endorsement of this point.

To substantiate, if possible, this doctrine of "spending a little more to save a lot more," Emery Air Freight Corporation in 1953 initiated action in two directions: First, the Harvard University Graduate School of Business Administration was asked if basic research into the economic soundness of the use of air freight transportation by industry would be undertaken at the School. Second, three airlines—American, TWA and United—were invited to join Emery in sponsoring and providing funds for the research.

The Harvard Business School was



Leonard G. Hunt

selected because of the unsurpassed recognition and confidence of industry which it enjoys. The airlines were invited to join the program because it was designed to benefit the whole air transportation industry.

The research work, conducted by Dr. Howard T. Lewis, Professor of Marketing at the Harvard Business School, required three years to complete. The first or pilot-study phase was paid for by the four air carriers. The second and final phase was underwritten by Emery Air Freight, aided importantly—and significantly—by a research grant from

the Business School itself.

The research is now complete. And with this published report business history has been made. For in this report industry will find a new approach toward the solution of the problem of distribution costs, and air freight now has a firm economic foundation upon which to base its plans and hopes for the future.

What is the most important problem confronting American business today? In the judgment of many authorities, it is the cost of distribution, using the term in its broadest sense.

What is the cause of high distribution costs? There are many elements, but important among them is distance. To keep pace with the demand for its products, American business today must both procure and distribute nationally and even internationally, and this makes distance—as well as the means of overcoming it—a matter of prime importance.

How to accomplish these production and distribution essentials at lowest total cost, how to overcome the handicap of distance from sources and distance from consumers—this, broadly, is the problem of distribution.

In the past, the cost of transportation (of materials to producer and of finished products to consumer) has been held down by the employment of regional and local warehouses and stock-

(Continued on Page 20)



22,235-POUND ANTI-TANK WEAPON loaded into *Hercules* during Air Force and Army tests at Pope Air Force Base, North Carolina

The Air Force gets its first turboprop transport this month—
Lockheed's fast, rugged C-130 *Hercules*.

HERCULES IN ACTION

FOLLOWING simulated wartime tests at Pope Air Force Base, North Carolina, the Lockheed C-130 *Hercules*, propjet military transport, joins the United States Air Force this month at Ardmore Air Force Base, Oklahoma. This will be the Air Force's first turboprop transport and reportedly will replace the famous *Flying Boxcar*.

During six weeks of aerial maneuvers, a total of 86 missions was flown. This represented a total airlift of 160 tons of supplies, 315 dummies, and 485 paratroopers who were dropped. It was pointed out that each mission, in one way or another, underwent actual com-

bat conditions in which the *Hercules* was designed to be employed. Equipment drops included self-propelled weapons, jeeps, guns, food, medical supplies, and road-building equipment.

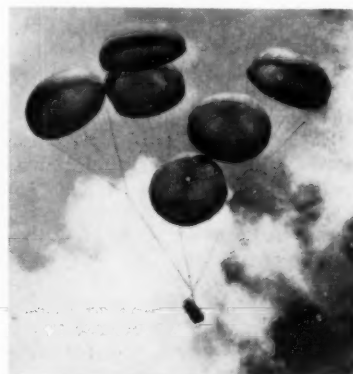
The big turboprop can haul 20 tons of equipment, or lift 92 fully combat-equipped troops, or serve as a hospital ship for 70 litter patients with medical attendants. During the test period, the *Hercules* showed that it could successfully perform missions requiring fast turn-arounds. An average of only 20 minutes was required to change from a personnel plane carrying 30 troops to a cargo plane transporting heavy freight.

The transformation of the C-130 from a 40-troop configuration—in this arrangement center seats are in the cargo section—to a heavy-platform drop arrangement averaged approximately 40 minutes.

Earlier this year, the *Hercules* set a new world record when it successfully dropped a 27,000-pound load, the heaviest single load ever paraded from an aircraft (see *October, 1956 issue*). The record-breaker was a dummy load of iron, including the platform carrying it. A half-dozen 100 foot parachutes floated the 13½ tons to the ground from an altitude of 2,000 feet. • • •



PARACHUTE extracts 2½-ton truck from *Hercules*, then . . .



. . . floats cargo gently to earth.

UNCRATED FREIGHT Via ROADAIR

By M. R. DOWLAND

AS a result of a British airline company's pioneering work carrying uncrated goods from Britain to Europe, a new freight aircraft has been evolved. This is the Bristol Freighter Mark 32 which is now also in service with the Pakistan Air Force, as well as being used in Canada and New Zealand and in Australia, where the National Airlines are using it for cattle traffic.

The aircraft was originally redesigned for Silver City Airways Ltd. of London—one of several air charter companies in Britain—to meet the requirements of its cross-Channel uncrated freight service. Uninterrupted floor space was an essential for, in this case stacking was impossible, and it was necessary to have a maximum pay load if the service was to be economic.

The company, therefore, specified that, among other modifications, the fuselage should be lengthened by nine feet to give a long unobstructed hold with a flat floor and, in addition, adequate tie-points to enable the load to be properly secured. Consequent upon this modification the tail fin was altered and the engine power increased. The Mark 32 is powered with two Bristol Hercules engines each of 2,000 horsepower with a gasoline consumption of one gallon per mile per minute.

Sending goods by air uncrated in this way is a comparatively new departure, but it is becoming more widely used since it means reduction in weight which, in turn, results in lower freight costs. On the other hand, such freight naturally demands the most careful handling which can only be given by meticulous planning and good airport facilities—for example, forklift trucks, adequate transit sheds and well-trained handling staff.

Surface Contractors

For Roadair—Silver City Airways new type of cargo cross-Channel service—the loading for surface transit is done by carefully selected and authorized surface contractors on both sides of the Channel who pack the goods into special vans which are then closed and locked until they reach their destination. It is, in fact, a through door-to-door transport service, and supervision is as stringent on the land transit portion of the service as it is during the Channel crossing—regarded as the most vulnerable part of the route. In addition, speed is regarded as essential, and



LOADING UNCRATED LAUNDRY MACHINES into a Bristol Freighter Mark 32 at Ferryfield, England, Silver City Airways' airport in Southern England.

at Ferryfield, in Kent, where the company's own airport is situated, heavily loaded aircraft are taking off all day at intervals of a few minutes.

This rapid flow of freight traffic is achieved by working on a conveyor belt principle. The volume of traffic is geared to the load capacity of the aircraft which, in turn, means that customs inspection is speedy and on and off loading is not delayed by accumulations of more freight than can be handled.

For the first time in the history of commercial air transport more than 1,000 tons of air cargo, excluding vehicles, was flown by this means in one recent period of four weeks between airports on the English and French coasts and Channel Islands. Manufacturers of every type of basic commodity used the service.

One example of how well uncrated goods travel by Roadair came to light recently when a sideboard was flown from France. Someone opened the doors of the cupboards during unloading at Ferryfield, and found them filled with drinking glasses that had made the Channel crossing without the slightest damage.

The suitability of the Mark 32 for any kind of delicate freight can be judged from the fact that not only is it used to transport machinery, radio and television equipment, but it has carried

oil drilling equipment for the Middle East—all uncrated—race horses, bloodstock, and entire show jumping teams. Among more unusual freight have been small aircraft, with wings removed, which have been carried from one country to another, while on one occasion a new helicopter was carried bodily to Greenland. Loads of fresh meat and lobsters are sometimes taken from Britain to France. A considerable volume of new cars is also flown to France from British factories; these go to La Touquet where special transit sheds house the freight in bond until delivery can be made to customers.

The Channel Islands are among the customers for quick deliveries of goods; every day during the season these aircraft fly fruit and early flowers from Jersey and Guernsey into the port of Southampton in the south of England, consumer goods from the mainland packing the aircraft on the return journey.

Roadair's charter operations, in which the Mark 32 is used, are expanding rapidly and with pilots and navigators of exceptional qualifications (two of them, Captain Hackett and Mr. Money-penny, made history when they flew a *Canberra* jet aircraft across the Atlantic and back in a day) they now cover a large part of the world. • • •

AIR CARGO: SECOND QUARTER

Statistics covering freight and express flown by the scheduled combination (passenger-cargo) airlines of the United States during the comparative second quarters of 1955 and 1956.

REVENUE TON-MILES OF FREIGHT CARRIED

	2nd Quarter 1956	2nd Quarter 1955	Percent of Change
Domestic Trunklines	43,333,000	42,961,000	+0.9
Local Service Airlines	405,000	368,000	+10.0
Territorial Airlines	362,000	413,000	-12.3
Helicopter Airlines	2,000	1,000	+100.0
International & Overseas Airlines	25,078,000	21,869,000	+16.5
Alaskan Airlines	2,072,000 ¹	1,816,000 ¹	+14.1
Consolidated Industry	71,641,000	67,428,000	+6.2

REVENUE TON-MILES OF EXPRESS CARRIED

Domestic Trunklines	11,015,000	11,124,000	-1.0
Local Service Airlines	392,000	316,000	+24.1
Helicopter Airlines	9,000	9,000	
Consolidated Industry	11,416,000	11,449,000	-0.3

OPERATING REVENUES—FREIGHT

Domestic Trunklines	\$9,820,000	\$9,893,000	-0.7
Local Service Airlines	186,000	148,000	+25.7
Territorial Airlines	203,000	188,000	+7.9
Helicopter Airlines	7,000	6,000	+16.7
International & Overseas Airlines	8,891,000 ²	7,679,000 ²	+15.8
Alaskan Airlines	734,000 ²	580,000 ²	+26.5
Consolidated Industry	\$19,841,000³	\$18,494,000³	+7.3

OPERATING REVENUES—EXPRESS

Domestic Trunklines	\$4,221,000	\$4,505,000	-6.3
Local Service Airlines	194,000	150,000	+29.3
Helicopter Airlines	33,000	24,000	+37.5
Combined Industry	\$4,448,000⁴	\$4,680,000⁴	-4.9

¹ Preliminary report.

² Express and freight combined.

³ Includes express carried by International and Alaskan carriers.

⁴ Does not include express carried by International and Alaskan carriers.

DOMESTIC TRUNKLINES

American • Braniff
Capital • Continental
Delta • Eastern
National • Northeast
Northwest • TWA
United • Western

LOCAL SERVICE AIRLINES

Allegheny • Bonanza
Central • Frontier
Lake Central • Mohawk
North Central • Ozark
Piedmont • Southern
Southwest • Trans-Texas
West Coast

TERRITORIAL AIRLINES

Hawaiian
Trans-Pacific

HELICOPTER AIRLINES

Helicopter
Los Angeles
New York

INTERNATIONAL & OVERSEAS AIRLINES

American • Braniff
Caribbean/Atlantic • Delta
Eastern • National
Northwest • Pan American
Panagra • TWA
United

ALASKAN AIRLINES

Alaska • Alaska Coastal
Byers • Cordova
Ellis • Northern Consolidated
Pacific Northern • Reeve Aleutian
Wien Alaska

These statistics do not cover the operations of the scheduled all-cargo airlines.

PORTS and/or PLACES

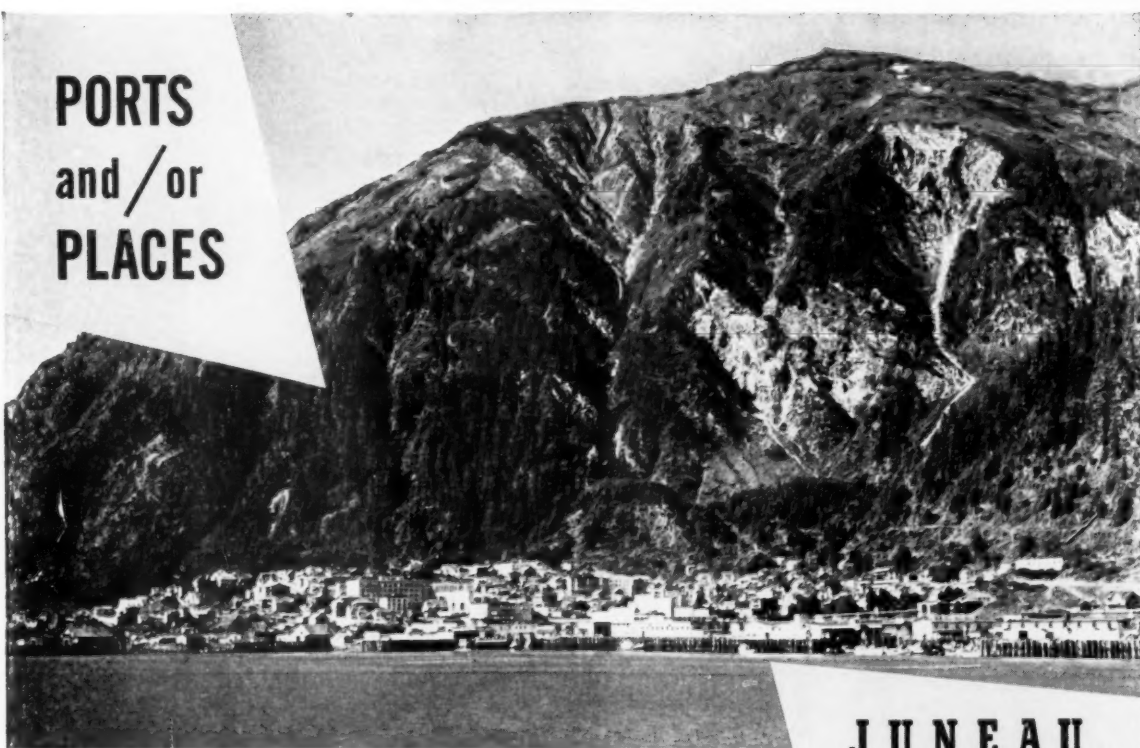


PHOTO COURTESY OF ALASKA DEVELOPMENT BOARD

JUNEAU

To Juneau, capital of Alaska, the bearded prospectors, the dance hall girls and gamblers, even the gleaming yellow nuggets are relics of the past. Now a modern city, it boasts extensive lumber exports and a thriving tourist trade. Today's adventurers find a sporty golf course, spectacular ski slopes and gorgeous scenery.

The \$1,000,000 Territorial Building houses one of the world's best museums. And the city's social headquarters, the

modern Baronof Hotel, has interesting murals of old Alaskan legends on the walls of its Bubble Room.

Although no roads lead to Juneau, it can easily be reached by boat or plane. During the past year, 296 ships—184 American Flag and 112 Canadian vessels—called at the port. Actually only about two dozen ships were involved but their repeated calls gave excellent service to this historic port.

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Air Express • Overseas passenger Charter
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HUNT REVIEW

(Continued from Page 15)

piles, but other costs of distribution—handling, storage, possession and re-handling—have had to be assumed.

Only during the last decade has a new element come into the distribution picture. It is air freight, costly by comparison to other means of transportation, but so many times faster that it virtually eliminates distance as a controlling influence on procurement and distribution facilities and methods. With the advent of air freight, all places are "near" to all other places. No production line is far away from any vendor. No customer is more than a few hours distant from any source of supply. The whole vast complex of methods, facilities, payrolls and their attendant costs, by which industry has sought to overcome the handicap of distance, may have been made unnecessary by air freight speed.

The possibility that air freight will help solve the problem of effective distribution at lower total cost is clearly a matter of great moment to industry. But how good a possibility is it?

Now, for the first time, impartially and authoritatively, this question has been studied. Following 18 months of field investigation covering a broad cross-section of American business, a research report has been issued by the Harvard University Graduate School of Business Administration, titled *The Role of Air Freight in Physical Distribution*.

This report describes the distribution problem and explores distribution costs. It considers air freight as a medium of transportation and as a tool of business in procurement and distribution. It confirms the possibility that air freight can reduce overall costs, and outlines the characteristics of products which may be "air freight candidates" and the specifications for the cost analyses that are useful to prove or disprove the overall economy of air freight.

Finally, it provides case histories of companies which recognized the possibility of lower distribution cost, applied the yardsticks provided through this research, and found that air freight could and would do the job—not only better, but at a lower total cost.

There is no substitute for a reading of the research report itself. But, simply as an introduction to it, an outline of its salient findings and conclusions is given in the following.

Part I

FINDINGS AND CONCLUSIONS

One purpose of this study was to develop a method of analysis that could

be followed by any industrial company to determine the economies of substituting higher priced air freight transportation for the high cost of carrying inventory or the continuance of costly warehouse systems required by slower, lower cost surface transportation. Also, this report reveals a new concept of the relationship of the traffic function to the whole area of physical distribution. And further, it substantiates the doctrine that the use of air freight in procurement or distribution functions will produce net savings under varying circumstances.

Point by Point

The Character and Growth of Air Freight: The uniqueness of air freight—and its most prominent characteristic—lies in its tremendous speed. Emery has maintained that the speed of air has compacted the area of the United States into dimensions which, in terms of surface transit time, are in the neighborhood of 350 by 250 miles. Evidence of its tremendous progress is shown in this report by the fact that air freight has grown four-fold since 1948. Yet there is ample opportunity for future expansion for in terms of ton-miles, air freight represented only 1/25 of 1% of total intercity traffic in 1955.

Users of Air Freight: Users of air freight can be classified as "pure emergency" users, "predictable emergency" users, and "regular" users. The "pure emergency" users—those who use air freight infrequently, and then only in dire circumstances—represent the largest number of shippers. A substantial number of companies use air freight to solve consciously chosen "emergencies." Use of air freight for this "predictable" emergency—by automobile assembly plants for instance—is an example of management performing the important function of calculating risks by balancing higher procurement costs (including transportation) against lower inventory costs. The "regular" users are those who regard air freight as a "normal routine means of transportation" for certain commodities.

The Decision to Use Air Freight: In all cases studied, the decision to use air freight was almost always made by top management. The report stresses the need to cross traditional organizational lines for such a decision so a coordinating function is needed, and only executive management can supply it. Pure emergencies produce a crisis with

The Role of Air Freight in Physical Distribution can be purchased by writing to The Graduate School of Business Administration, Harvard University, Soldiers Field, Boston, Massachusetts. The price is \$2.50 per copy.



THAT OTHERS MAY LIVE

This is the motto of the Air Rescue Service, proved by their actions. Last year alone, the 40 Air Rescue Squadrons flew 3,954 missions totaling 29,035 hours to give aid and comfort to 30,796 people, military and civilian, rescuing 2,619 from certain death. Grumman is proud to build the Albatross amphibians flown by the USAF Air Rescue Service.

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which top management is concerned and use of premium transportation is almost automatically authorized. Planned use of air transportation to meet predictable emergencies involves a continuing concern of top management with problems of scheduling and control. The regular users are those whose top management is facing up to a particular problem in which use of air freight offers a solution. Almost always, some aspect of inventory is involved, such as balancing the cost of always having full inventory on hand (thereby avoiding all "emergencies") against the cost of

meeting emergencies caused by maintaining a low inventory in the attempt to keep inventory costs at a minimum.

Planning in Physical Distribution and Air Freight: There is a noticeable relationship between the use of air freight and the amount and quality of planning done by the user. Those users who have engaged in extensive planning of their production flow have quite naturally found that such planning extends back to inventory, transportation and suppliers. Paradoxically, those without the habit or ability to plan may be excellent prospects for air freight, since

they may be "more prone to emergencies."

"The Air Candidates:" The inherent factors which determine those commodities susceptible to air freight—the "air candidates"—are generally: Low density; medium to relatively high value per pound; those whose value is increased at destination by reason of speed in transit; and those purchased from or distributed to distant markets. Despite these limitations, however, the range of commodities which do qualify as air candidates is great, and at this point we merely ask the reader to keep an open mind on the subject.

Physical Distribution

Air Freight and Distribution: Physical distribution, as used here, includes all those activities that are involved in physically handling a product both in procurement and in distribution. The main areas are transportation itself, carrying—or the possession of—inventory, warehousing, packaging and the like. Many management responsibilities are involved—determining alternate means of transportation, determining the size and location of inventory, establishing the appropriate balance between size of inventory needed for sales or production requirements, the capital costs of carrying it, and so on. Major emphasis is on inventory and warehousing for these reasons. First, these are the most important areas affected by changes in the method of transportation. They are important both in the amount of money spent upon them and in the management and organization problems involved. Secondly, a thorough exploration of inventory and warehousing will demonstrate a kind of analysis which can be employed in looking into other aspects of physical distribution. In other words, exploring these areas will help create an awareness of the far-reaching effects that changing transportation methods and costs can have upon a business. Thirdly, these are two areas in which some information, albeit sparse, is most readily available in business organizations.

Inventory: Data on inventory costs proved to be inadequate. Even more disturbing to researchers was the disclosure that so little interest was shown by management in what it *does* cost to carry inventory. However, discussions with executives brought to light the kinds of costs which should be taken into account when determining whether air freight can be used to reduce inventory levels sufficiently to lower costs. Most commonly mentioned were the costs of interest, taxes, obsolescence, deterioration, insurance, warehousing, acquisition and labor. The study concludes that the use of the "total cost

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concept," as applied to physical distribution, would have three advantages: It would concentrate management attention on an area well worth the time and effort in potential savings; it would furnish data necessary to make a sound judgment about alternative forms of transportation, warehousing, etc.; and it would represent a real start on getting facts on one portion of the total cost of distribution. Attention is called to Part II, in which the "total cost concept" and its application to use of air freight and its effect on inventories in two companies are tested.

Management Planning

Impact of Air Freight on Size of Inventory: The study indicates that while air freight offers the possibility of operating on lower inventory at lower net cost, such a result is not automatic. It requires management planning to take advantage of the opportunity. Management should look on "savings" as one "package" and compare total savings with total increase in transportation costs. Against these "net savings" must be balanced other possible additional costs: The need and—perhaps—the cost of more closely managing the lower inventory; the possible increased handling costs resultant from more frequent receipts; and the possible increases in ordering costs. With these principles and qualifications, the concept that net savings in inventory costs are obtainable through use of the speed and dependability of air freight can be substantiated to a degree:

► Under certain circumstances, net savings are possible and often are substantial.

► No generalizations, applicable to all companies, can be made about the amount of possible savings. Each company must answer the question after a thorough analysis of its own conditions.

► The whole area of inventory control as affected by "transportation" is an unexplored one, justifying far more management attention than it has thus far received.

Warehousing: Unlike the seeming lack of interest in inventory costs, a number of companies have been reviewing warehousing practices. The fundamental question is whether the added speed of air will, in fact, enable a company to serve its old customers better, to find new customers and to procure these advantages at lower costs than by use of warehousing to the extent required by slower modes of transportation. The study concludes:

► Reappraisal of warehousing practices and costs may, under certain circumstances, indicate that air freight can be substituted for the higher cost warehouses in existing systems.

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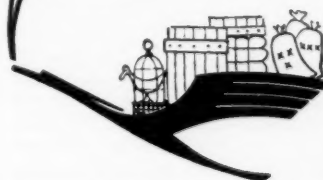
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OFFICES IN PRINCIPAL CITIES

► When expansion is being planned, management should take a long look at the possibility that some portion of inventory might well be transported by air directly to customers, branches or distributors at substantial savings in cost. Especially would this be true where a company is considering expansion of markets into new areas. Experimental use of air transport can remove the necessity for heavy investment of capital in bricks and mortar.

Many Affect Traffic

Conclusions and Suggestions: A reappraisal of the physical distribution situation in most companies is made difficult by the fact that the decision-making function lies with top management. No one person has all the responsibilities of this function. Sales executives, warehouse managers, traffic managers, purchasing executives, inventory and production control managers and production managers—all have been in one or more phases of work which affects policies, costs and efficiency of physical distribution. If the company has the right kind of internal auditor, the report indicates that he might be given the responsibility for the study—thus avoiding charges of special interest or bias if sales, procurement, traffic, the controller department, or even a "special committee" were to undertake the task. It also is suggested that the assignment of prime responsibility to some qualified person might be augmented by an advisory committee representing all interested departments.

To make an examination of the relation of physical distribution and transportation of any value, there must be an attitude of full understanding on the part of top executive management, shared by all other departments involved. Statements of findings should be positive. The recommendations growing out of them should be directed to the chief executive for action. And the purpose of the examination should

not be to prove that air freight is desirable but to explore its full possibilities.

That the analytical approach suggested in Part I can be useful to indicate savings is portrayed in the Case Studies following.

Part II TWO CASE STUDIES

by Jack D. Steele

THE ELECTRO-LAB COMPANY*

Foreword: This Case Study is an excellent illustration of the application of the total cost concept to the distribution function and its related activities of transportation, warehousing expense and cost of possession of inventory.

Business: Producer of electronic tubes located in the eastern part of the United States.

Product Chosen for Study: Receiving tubes for television replacement market.

Reasons for choice of product studied:

► Receiving tubes were an example of an air candidate—low density and high value.

► Receiving tubes were the only product moving distances over 500 miles and distributed through two regional warehouses.

Production Lead Time: One week from raw material to test line; three weeks for quality control test; total four weeks to plant warehouse. Because of demand, The Electro-Lab Company had a chronic shortage in inventory, necessitating the production of as many different types each month as possible in short runs which, in turn, increased unit cost of production.

*As in all Harvard Business School "Case Studies," actual company names are not disclosed.

Physical Distribution of Product: Responsibility rested upon the sales department. Minimum and maximum inventory levels, restocking order schedule, and replenishment cycle were the responsibility of finished goods planning manager. Planned inventory levels at the field warehouses were 60 days minimum and 90 days maximum, these levels being expressed in specific quantities of each tube type. The specific quantity levels for each tube type were determined by sales, the replenishment cycle and a safety factor. The field warehouse manager in placing semi-monthly stocking orders has authority to bring inventories to a maximum. If significant changes in sales volume occur, the warehouse manager informs the finished goods manager and recommends an increase or decrease in minimum and maximum levels. The latter has the authority to raise and lower such inventory limits, but the general sales manager only has the authority to change the number of tube types making up the inventory. The Chicago warehouse inventory, housed in a company-owned building, was not tested on arrival; shipments received at Los Angeles were tested at extra cost.

Replenishment Cycle and Restocking Order Schedule: Replenishment cycle was 16 days to Chicago; 22 days to Los Angeles. Of these periods, three days were allowed at the warehouse for the placement and paper work of the order and five days at the plant for filling, packing and shipping the order. Transit times were eight and 14 days, respectively. Restocking schedule was semi-monthly, on the 1st and 16th of each month.

Sales and Costs

Sales at Warehouse, Six Month Period: At Chicago, over 8,800,000 units for over \$7,100,000; at Los Angeles, over 4,700,000 units at approximately \$3,600,000.

Transportation Cost — Six Month Period: To Chicago warehouse—881,020 lbs. @ \$40,770; to Los Angeles warehouse—168,100 lbs. @ \$17,205.

Total Cost of Physical Distribution, Including Possession of Inventory: While The Electro-Lab Company had not included interest on capital invested and insurance premiums in its costs of warehousing and ownership of inventory, these were computed and added to the recorded figures and the following monthly total costs, including the cost of surface transportation to replenish inventories were as follows:

Chicago Warehouse	\$ 62,097
Los Angeles Warehouse ...	61,498

Total \$123,595

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Analysis of the Effect on Total Cost of Physical Distribution if Air Freight Were Used as a Regular Means of Transportation:

- ▶ Transit time can be reduced.
- ▶ A change in transit time will affect the replenishment cycle.
- ▶ The change in replenishment cycle will affect the levels of inventory required, which will affect costs.
- ▶ On the other hand, use of air freight will increase transportation expense.

Effect on Transit Time: Transit time to Chicago can be reduced to one or two instead of eight days; to Los Angeles, transit time can be reduced to two or three rather than 14 days.

Effect on Replenishment Cycle: This cycle is reduced from 16 to nine or 10 days as to the Chicago warehouse; and from 22 to 10 or 11 days, as to Los Angeles.

Effect on Inventory Levels: To determine the effect on minimum and maximum inventory levels that use of air freight might have, the rate of sales per day had to be ascertained on an item-by-item basis. This examination gave an average of 65,000 units sold per day at Chicago and 30,000 units sold at Los Angeles.

Reduction of Minimum and Maximum Inventory Levels—Chicago Warehouse: Minimum and maximum levels were reduced from two and three months respectively, to 19 days minimum and 33 days maximum, if air freight were used, because:

- ▶ The replenishment cycle could be reduced to 10 days.
- ▶ The safety factor need not be so high.
- ▶ Sales could increase as much as 70% during one replenishment cycle without depleting inventory.

Effect on Average Inventory at Chicago: Average inventory would be reduced 65% at the new levels, which would release \$1,280,000 of capital. At 5% (low, now, in terms of present interest rates) savings would be \$64,000 yearly.

Effect on Average Inventory at Los Angeles: Minimum and maximum levels could be reduced to 23 and 37 days respectively, if air freight were used, for the same reasons given above. Average inventory could be reduced 56%, releasing capital in an additional amount of \$482,000, at a savings of \$24,100 yearly.

Total Capital Released by Reduced Inventory Levels: The total released capital from both warehouses would amount to \$1,762,000. At 5% interest, gross savings of \$88,100 would be enjoyed. The released capital also could be reinvested by the company.

Other Reductions

Effect on Other Costs of Reduction in Inventory by Use of Air Freight:

- ▶ State Property Taxes in Illinois and California would be reduced by \$62,268 per year.
- ▶ Insurance premium would be reduced by \$3,696 per year.

Effect of Air Freight on Transportation Expense: Against the savings hereinbefore enumerated, transportation expense would be increased by \$75,076.

Net Effect of Increased Transportation Cost and Savings of Cost on Reduced Inventory:

	Annual Savings		
	Chicago	Los Angeles	Total
Interest on Released Capital.	\$63,980	\$24,115	\$ 88,095
Tax on Inventory	26,988	35,280	62,268
Insurance on Inventory	2,688	1,008	3,696
Total	\$93,656	\$60,403	\$154,059
Increased Air Transportation Expense	26,356	48,720	75,076
Net Savings	\$67,300	\$11,683	\$ 78,983

Other Potential Savings Not Included: Reduction in transit time would afford additional savings in interest on stock tied up in transit. Obsolescence

and deterioration were not taken into account in determining cost of carrying inventory. While depreciation of receiving tubes is negligible, obsolescence, by reason of a change in type of tube by a set manufacturer, can be significant. For purposes of this analysis, the replenishment cycles were assumed to remain at eight days, excluding transit time. Closer control of inventory resulting from this analysis might well result in reduction of the replenishment cycle, with still lower inventory levels.

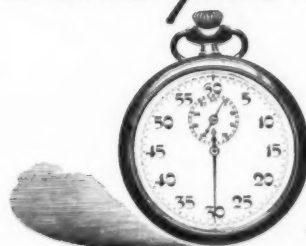
Labor expense might be reduced at the warehouses and the space needed should be less. Rent might be reduced by 40%. Testing expense at Los Angeles might be eliminated by reason of less exposure to rough handling and damage in air freight transportation. The addition of savings from rent reduction and elimination of testing at Los Angeles can bring annual savings up to \$262,944. Deducting increased transportation expense of \$75,076 brings possible *net* savings to \$187,868 annually. This, in the case of the Electro-Lab Company, would be equal to 7/10ths of a cent increase in profit per tube.

Conclusions: This case is an illustration of the total cost concept applied to the physical distribution function. Physical distribution includes the inter-related package of costs of transportation, the fixed and variable costs of operating a warehouse, and the cost of carrying—or the possession of—inventory. The speed of air gave the Electro-Lab Company the opportunity to reduce inventory and gain savings overall. While reduction of inventory, regardless of the mode of transportation, might have resulted in savings without shifting to air, investigation of the use of air was the catalyst which brought the main source of savings to light.

The Moseby Company

Foreword: The case of the Moseby Company is illustrated for a purpose

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somewhat different from that of the analysis of the Electro-Lab Company. In the course of research at the Moseby Company, it was found that, in addition to the application of the total cost concept to physical distribution, development of some method of establishing cut-off points between the use of warehousing, and the use of air freight instead of warehouses, would be helpful. The situation at the Moseby Company enabled the researcher to analyze the impact on physical distribution costs of several variables—such as differences in air freight rates for different distances, varied levels of inventory, and the general relation between fixed and variable costs. For this reason, a number of factors such as replacement time, adjustments in taxes, insurance and interest and establishment of minimum inventories, which were dealt with minutely in the study of the Electro-Lab Company, have not been considered in this Case Study of the Moseby Company.

Background

Business: Originally a machine shop in Kansas, the Moseby Company expanded rapidly during and after World War II and began in 1951 to manufacture fuel pumps for the replacement market. The company suffered a chronic shortage of working capital in the postwar period because of rapid expansion of its new fuel pump market, diversification of its product line and difficulty in attracting capital because earnings in prior years were unsatisfactory. As a result, maximum utilization of capital was a prime consideration.

Product Chosen for Study: This study focuses on the physical distribution costs of a single product—fuel pumps.

Reasons for Choice of Product Studied:

- Because of the method of distribution of the product.

- Fuel pumps have only a modest value for their density characteristics (density 21.7; value per pound, 58¢).

- Analysis of this product's distribution might show whether only products of low density and high value are "air candidates"—those commodities susceptible to air freight distribution.

Product Line: Thirty-six models of a quality fuel pump, higher priced than those of its competitors, were manufactured; and 20 additional models, competitively priced, were also in the line. The average selling price of the quality line was \$3.65, while the competitive line averaged \$2.90. Weight per pump was about three pounds.

Method of Distribution: Sold by 14 strategically located manufacturer's agents, with a missionary sales force of

seven to support these agents. The agents sold to some 1200 jobbers. The company also sold directly to buying groups such as chain stores or groups of jobbers maintaining a central buying office.

Warehouses: Inventories of fuel pumps were maintained at the factory warehouse and at seven regional warehouses in New York, Atlanta, Chicago, Dallas, San Francisco, Los Angeles and Seattle. The latter accounted for 45% of sales; factory warehouse, 55%. The regional warehouses were not owned, leased or rented. Instead they were owned by the manufacturer's agents or by large distributors. Title to the inventory was held by the company. Costs of insurance, taxes and interest on capital were borne by the company. To the owners of the regional warehouses, the company paid a fee of 5% on gross sales shipped. The factory warehouse was owned by the company. Because of shortage of capital the company had a "field," or "custodian" warehouse arrangement with another company, whereby the daily production output went directly to the factory warehouse where it became the collateral for a loan to the company. Rates for use of capital tied up in factory warehouse inventory were from 10% to 12%. Shipments to direct customers, or to regional warehouses for replenishment, were made from factory inventory.

Maintenance of Regional Inventory Levels: Policy called for a minimum level of 60 days and a maximum of 90. No regular order schedule for replenishment was maintained. In placing orders, 20 days were allowed for physical replenishment—five days for picking, packing and shipping; 14 days transit time; one day to fill the shelves. Investigation from data available of the inventory balances for the higher-priced line proved that the stated inventory policy of 60-90 days was not being followed. Variation from the stated policy had resulted in capital being tied up unnecessarily in four of the seven warehouses. At the time of investigation, value of average inventory at all regional warehouses was over \$2,100,000.

Costs of Physical Distribution Through Regional Warehouses:

Warehouse Fee: In 1955 gross sales from seven warehouses were about \$14,500,000. Fees were \$724,420.

Interest on Total Average Inventory: Average inventories had a total value of \$2,137,060. Using the lower of the "10-20%" estimate of the cost of financing inventory at warehouses, interest charges were \$213,706 in 1955.

Taxes: Taxes levied on inventory were \$48,538.

Insurance: Premiums were \$13,000.

Cost of Taking Physical Inventory:

An annual fee of \$10,000 per year was paid to an auditing firm to take physical inventory at each warehouse.

Obsolescence: Not computed, though not negligible.

Transportation Expense: Total cost of truck transportation from factory warehouse to regional warehouses was \$408,600.

Total Charges—

Warehouse fees (5%)	\$ 724,420
Interest	213,706
Taxes	48,538
Insurance	13,000
Audit Fee	10,000
Transportation	408,634

Total \$1,418,298

Via Air Freight

Cost of Distribution if Air Freight Were Substituted for Transportation: Investigation proved that transportation charges by air to all warehouses would have increased total costs of distribution by nearly \$99,000 in 1955. However, a breakdown, warehouse by warehouse, indicated that use of air freight would be profitable as a substitute for all existing warehouses except that at New York. Net savings by continued use of the New York warehouse and use of air freight to the other six points would be about \$97,000. This illustrates the importance of developing cost data for individual cost centers. In addition to the indicated potential savings, a change in the method of distribution would affect three related areas: capital invested in inventory, control of total inventory position and sales volume.

Capital: If the Moseby Company abandoned six of its seven warehouses, \$1,680,350 of capital would be released.

Inventory Control: Consolidated at the factory warehouse, more effective control of total inventory position would be possible.

Sales: If part of inventory as to six of the principal agents or distributors were carried by them, transfer of ownership of that part from the Moseby Company to the distributors would be recorded as a one-time jump on sales.

It also is possible that the agents and distributors might not carry the Moseby Company's fuel pump lines, if the warehousing arrangement were no longer used, which would be a major blow to sales. These are a few of the qualitative factors that have to be evaluated along with quantitative data in making a decision to change the method of distribution.

Breakeven Analysis . . . Warehouse versus Air Freight: The foregoing analysis, based on 1955 sales volume, did not take into account a possible sales increase or decrease, nor did it

reflect what effect an increased or decreased sales volume would have upon the cost of distribution. Part of warehouse expense is fixed cost and part is variable cost. Fixed costs are incurred regardless of sales volume. The portion of total warehousing expense that is fixed is determined by the level of inventory carried, and since the level of inventory at each warehouse is assumed to remain the same, this portion of distribution expense is essentially fixed in relation to sales volume. Therefore, the lower the volume of sales, the higher the unit cost. In contrast, air freight primarily is a variable cost, and if the same service could be maintained using air freight, it would be advantageous costwise to refrain from using a warehouse until sales volume reached a point where warehousing would be worthwhile. The application of the techniques of breakeven analysis is a means of ascertaining the volume of sales at which the cost of warehousing

arrangement equals the cost of using air freight.

Formula for Determining the Breakeven Point:

$$a \text{ plus } b (x) = c (x)$$

when—

- a = Total Fixed Cost of Warehouse
- b = Warehouse Variable Unit Cost
- c = Air Freight Variable Unit Cost
- x = Breakeven quantity

In the case of the Moseby Company, the formula reveals that when the volume of sales is less than the breakeven quantity, the air freight distribution system involves lower costs; and when sales exceed the breakpoint, warehousing is less expensive.

Application of Breakeven Formula: The formula was applied to data for each of the seven warehouses to determine the breakeven point in sales volume for each.

Warehouse Fixed Costs—The fixed costs are taken to include interest, taxes, insurance and audit fee.

Warehouse Variable Costs—Variable costs of the warehouse method of distribution include the 5% fee and cost of surface transportation, since both of these costs are a function of sales volume. The variable cost is converted to cost per unit on 1955 volume.

Air Freight Cost: If the air freight method of distribution to the agents and distributors were used, the total cost would be transportation cost, which is a variable cost. This cost is converted to a variable unit cost on the basis of 1955 sales volume. The calculations afford the breakeven volume of sales for each warehouse and the percentages by which 1955 sales could increase or decrease before reaching the break-points. Sales of the New York warehouse would have to decrease by a substantial amount before the Moseby Company could give any consideration to the use of air freight. On the other hand, the use of air freight to San Francisco, Los Angeles, Dallas, and

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3. (A) Iran, India, Pakistan, Afghanistan.....	3¾¢%	7½¢%
(B) Ceylon.....	2½¢%	5¢%
(C) Burma.....	5¢%	10¢%
4. Australasia, Guam, Samoa.....	1½¢%	2½¢%
5. (A) Malaya, Thailand, Hongkong and Kowloon, Formosa.....	3¾¢%	7½¢%
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Seattle would clearly be to the company's advantage for some time to come. The sales volume generated by the Atlanta and Chicago warehouses would have to be closely watched if air freight were used. If sales increased by approximately 30%, air freight would cease to be an advantage to either the Chicago or Atlanta warehouse.

Conclusions: The study of the Moseby Company is illustrative of the me-

chanics and value of developing the cost of physical distribution within the framework of the total cost concept. The study also presents evidence that the base of commodities susceptible to air is broader than those of high value and low weight. Finally, investigation of the Moseby Company proves that if the total cost of distribution via surface and via air freight is developed, the techniques of breakeven analysis become a useful management tool. • • •

CONGRATULATIONS

(Continued from Page 14)

Sherrill moved up to the position of assistant to the chairman of the board.

Riddle: J. Robert Carter, assistant general traffic manager, named administrative assistant to John Paul Riddle, president . . . Virgil Brown, former district sales manager at Atlanta, appointed Atlanta district manager.

. . . James H. McGuinness, ex-traffic and sales coordinator for the New York area, replaces James Conley, resigned, as city sales manager in the same area . . . Christopher Pantages, sales representative, upped to supervisor of Puerto Rican sales in New York.



Gorman
Seaboard



Carter
Riddle

Seaboard & Western: Ogden C. Gorman, ex-district manager in Europe for United States Lines, named European sales manager with offices in Luxembourg . . . Edmund O. Schroeder, formerly assistant vice president-quality control of American Airlines, elected vice president-maintenance.

Slick: Raymond A. Anthony and Andrew James Upton, Jr., appointed to district managers in the respective cities of Baltimore and Louisville . . . Stuart H. Goldsborough named district sales manager of the Greater New York area.



Upton Goldsborough Anthony
Slick managers

United: Edmund Stohr, with UAL, since 1946 appointed European director for the

airline . . . Jackson F. Long named division manager of sales for the newly-created Southwest Division.

Western: Mason Mallory appointed sales promotion manager . . . Richard M. Parker, Harry L. White, and Gerald E. Autry named district sales managers for Montana, Hollywood, and Wyoming, respectively . . . Gordon C. Hudson appointed sales representative at St. Paul.

Foreign Airlines

BOAC: A. Wallace Owen named sales development officer-Canada. Succeeding him as district sales manager in Winnipeg is Jack Crook.

Japan: Robert J. McCabe appointed interline and agency sales manager . . . John H. Williams named to the position of commercial sales manager.

KLM: Mac M. Wilder appointed distribution supervisor in the U. S. publicity department.

Qantas: Dudley Dunn named to head the new New York office as manager for East Coast North America.

Sabena: Thomas Coonerty, ex-SAS and Pan Am, appointed New York regional manager.

Traffic & Export

Ford Motor Co., Dearborn, Michigan: R. M. Stevens named manager of the traffic control department. He succeeds J. A. Byers who has retired.

Caterpillar Tractor Co., Peoria, Illinois: E. J. Davis appointed director of traffic, with W. R. Blair as assistant. D. W. McFarland takes over as manager of rates and classifications . . . D. K. Warrior succeeds Blair as traffic manager at Decatur, Illinois.

West Virginia Pulp & Paper Co., New York: John G. Albert appointed chairman of the Traffic Committee, National Paperboard Association.

National Potash Co., New York: John J. McBride now serving as traffic manager. He was formerly associated with the Mutual Chemical Division, Allied Chemical & Dye Corp. as assistant traffic manager.

Consolidated Foods Corp., Kenneth E. Ketzel, who joined the firm several months ago, named director of transportation.

Jefferson Lake Sulphur Co., Houston: A. D. Kirby appointed general traffic manager.

Northrup, King & Co., Minneapolis: W. William Cowle named traffic manager. James W. Peeke continues as chief of the company's traffic set-up under the title of general manager.

Corn Products Refining Co., A. F. Remmers succeeds F. J. Wade, retired, as general traffic manager.

Macy's, New York: Leo J. Lewison upped to traffic manager. Edward J. Derenthal has taken over the post of manager

of adjustment service. Dennis C. Mulhearn fills the position of delivery manager. Robert J. Bonadonna moves to assistant traffic manager.

Dannen Mills, Inc., St. Joseph, Missouri: Robert E. Payne appointed traffic manager.

Hudson Pulp & Paper Corp., Palatka, Florida: M. Malmend transferred to the traffic managership of the southern division.

Ford Motor Co., Richmond, California: Claude J. Beaver appointed traffic manager of the San Francisco Parts Depot, succeeding Harvey C. Noy who has retired after 41 years of service.

Aircraft Manufacturers

Lockheed: L. Eugene Root, top figure in research and development circles, appointed vice president of Lockheed and general manager of the new Missile System Division. Root, who succeeds Hall L. Hibbard, is a former executive of the Rand Corporation and chairman of the aerodynamics advisory panel of the Atomic Energy Commission at Los Alamos.



Root
Lockheed

Martin: John E. Parker elected a member of the board of directors.

Vertol: Harry B. Horne promoted to manager of contracts and spares . . . William E. Hughes elevated to manager of the contracts department . . . Edward J. Doherty named assistant to the president in charge of public relations and advertising.

Miscellaneous

Air Transport Association: John E. Stephen, executive assistant to the mayor of Houston, named general counsel. Clifton J. Stratton, Jr. appointed assistant general counsel.

National Aeronautic Association: Dr. Edward Pearson Warner, president, ICAO, selected unanimously to receive the Wright Brothers Memorial Trophy for 1956.

California Chapter, American Society of Traffic and Transportation:

The following officers were elected at the recent annual meeting: Leonard J. Rowley (traffic and transportation manager, Lockheed Aircraft

Corporation, Burbank, California), president; Truett P. Wadsworth (assistant freight traffic manager, Western Pacific Railroad, San Francisco), vice president; Arthur A. Moser (assistant general freight agent, Atchison, Topeka & Santa Fe Railway, San Francisco), treasurer—reelected; Mrs. B. E. Anderson (traffic manager, Modglein Company, Inc., Los Angeles), secretary—reelected. Newest member of the board is C. G. Rickenbaugh, traffic manager, RCA-Victor Division, Los Angeles. Members reelected to the board included A. P. Heiner, vice president-public relations and



traffic, Kaiser Steel Corporation, Oakland; John W. Witherspoon, assistant general traffic manager, U. S. Rubber Company, Los Angeles; William O. Narry, assistant manager, foreign department, Richfield Oil Corporation, Los Angeles; and George B. Cron, traffic manager, Chevrolet Division, General Motors Corporation, Oakland.

Women's Traffic Club of San Francisco: Recent meeting heard a report of President Anita Pruett, Pacific Southcoast Freight Bureau, on the National Convention of the Associated Traffic Clubs of America which recently was held in Miami.

Nassau Suffolk Traffic Club, Inc., Stewart Manor, Long Island, New York: Following a meeting devoted to the subject of air transportation, the organization devoted a night to railroad traffic.

Traffic Club of Memphis: Newly elected and installed members: W. D. Gray (office manager, Southern Hardwood Traffic Association), president; D. A. Hitchcock (traffic manager, U. S. Rubber Company), industrial vice president; C. W. Watkins (general agent, Texas & Pacific Railroad), transportation vice president. New members of the board: Paul W. Hansel, freight traffic agent, Nashville, Chattanooga & St. Louis Railroad; Forrest L. Lipe, general agent, Illinois Central Railroad; Ken D. Robinson, traffic representative, Spencer Chemical Company; Clark C. Riffe, general agent, Chicago, Burlington & Quincy Railroad; Charles C. Moore, assistant traffic manager, Humko Company; G. M. Irving, sales manager, L. Sondheimer Company; J. M. Shipp, assistant cashier, National Bank of Commerce; D. Frank Brown, Harrison Steamship Lines; and Guy A. Taylor, sales representative, A & H Truck Lines.

Los Angeles Transportation Club: Nat H. Williams, general manager, Williams Transportation Company, has succeeded Henry E. Manker, traffic manager, Plumb Tool Company, as president of the club.

Commercial Traffic Managers of Philadelphia: Newly elected officers: P. G. Kraemer (Delaware River Port Authority), president; Harry Newmiller (traffic consultant), vice president; E. O. Heilbrun (Budd Company), secretary-treasurer. Elected board members: W. L. Travis, Atlantic Refining Company; Howard Macdonald, Yale & Towne Manufacturing Company; John R. Roeger, Fels & Company; William E. Callum, Frank H. Fleer Corporation; Leo F. Cannon, Pennsylvania Salt Manufacturing Company.

Traffic Club of Minneapolis: A. B. Sparboe, vice president-Overseas Division, Pillsbury Mills, Inc. discusses international trade at the 41st annual dinner this month.

Buffalo Traffic Club: Last month's regular meeting was devoted to the subject of communications with Clarence F. Luck, public relations supervisor, Western Area, New York Telephone Company, discussing and demonstrating telephone and television communications equipment.

Traffic Club of Tulsa: December 11 is the date for the club's installation dinner-dance at the Hotel Tulsa.

Traffic Club of Syracuse: Frank K. Welch, director of training, Carrier Corporation, Syracuse, New York addressed the club on the subject of *Developing People For Industry*.

COMMERCIAL AIRCRAFT

Lockheed's new 1649A Super Constellation recently took off from Burbank on its maiden flight. The initial flight was for about one hour and covered several hundred miles. Lockheed said that "soon it will be ready to stay aloft up to 24 hours and fly airline trips up to 6,300 miles nonstop"—the equivalent of circling the world in four hops. Though closely resembling the earlier *Constellations*, the 1649A is said to be 70% new. Gross takeoff weight of the big plane is now 156,000 pounds, as compared with 137,500 pounds for the Super G. Operation and maintenance procedures are identical with its sister ship. The wing, which is 27 feet greater than any airliner's wing, reaches to 150 feet. According to Burt C. Monesmith, vice president and general manager of Lockheed's California Division, the wing—it is one-sixth thinner than on previous Super Constellations—"is the secret to why the 1649A will fly further and faster than all other commercial transports." It cruises at 350 miles per hour on long-range flights. Top speed is approximately 400 miles per hour.

Forty-four 1649As, representing total investments of \$130 million, are on order. Airlines scheduled to receive the new Lockheed transport are TWA, Air France, Lufthansa, LAL, and Varig. TWA will be the first to receive it—in April, 1957. Air France receives hers two months later.

Basil Smallpeice, managing director of BOAC, and Lowell Mickelwait, general counsel for the Boeing Airplane Company, last month signed a contract for 15 Boeing 707-420 jet airliners (designation of the BOAC version). The planes will be powered by Rolls-Royce Conway engines. Cost of the aircraft and initial spares will total approximately \$123 million, of which \$25 million represents the cost of British engines, spare engines, and overhaul spares. Two weeks before the signing of the contract, Gerard deErlanger, BOAC chairman, stated:

"I am convinced that the acquisition by BOAC of large, high-speed and long-range turbojet airliners is imperative if the Corporation is to secure its competitive position on world routes, especially across the Atlantic, from 1960 onwards. It is always the aim of BOAC, of course, to fly British aircraft whenever and wherever practicable. Already the Corporation has ordered 33 Bristol *Britannias*, 19 de Havilland *Comet IVs*, and 12 Vickers *Viscounts* (required for associated companies). BOAC's contracts outstanding for British aircraft engines and spares represent total business for the British aircraft industry amounting to nearly \$238 million. Our decision to seek Government approval for the purchase of Boeing 707 airliners was dictated solely by the fact that no comparable British aircraft will be available at the time when this and similar long-range turbojets are being introduced by major airline competitors of BOAC. In the meantime we are discussing with de Havilland Aircraft Company Ltd. the technical details of an aircraft that will be sufficiently flexible to meet our worldwide requirements and ready to enter passenger service in 1962. Our plan for the Boeing 707s is to operate them on routes from Britain to the Eastern seaboard of the USA, to Canada and to the USA West Coast, possibly across the polar

region. Also, subject to Government approval, from Britain over the North Atlantic, the USA and Pacific to Australia."

BOAC recently received the first of 10 Douglas DC-7Cs it ordered. According to the Douglas Aircraft Company, Inc., seven of the planes will be delivered by the end of this month, three months earlier than the contractual date of March, 1957. The remaining three will be in the hands of BOAC by April.

Air France reports that test flights of the *Caravelle SE-210* jet transport are at a stepped-up pace. The jet, which entered scheduled cargo service for Air France last June, between Paris and Algiers, recently logged 37½ hours of flight in a five-day period "under the most diverse conditions." The French airline, which has ordered a dozen *Caravelles*, stated that "this is merely one phase of an over-all operations survey which will last one to two years." The aircraft has a cruising speed of 450 to 500 miles per hour and a passenger capacity of 70.

H. B. Main, executive assistant to the president of Canadian Pacific Airlines, recently stated that 10 Bristol *Britannias* and 10 DC-6Bs, which will be added to CPA's present overseas fleet of six DC-6Bs, will increase cargo and passenger capacity by 400%. Service on the Vancouver-Amsterdam Polar route will be accelerated with the *Britannias* to double the capacity from the present three-a-week schedule. DC-6Bs will be used in domestic service, initially between Vancouver and Kitimat, the new aluminum city on the West Coast, then on the Vancouver-Yukon route.

New orders totalling seven Model 440 *Metropolitan* commercial transports, received from three foreign air carriers and the Italian Government, brings to 125 the total of *Metropolitans* purchased from Convair to date. The new airline purchases were by REAL, Brazil (four), Karhumaki Airways, Finland (one), and Ansett Airways, Australia (one).



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Two Convair 240s, part of a Convair fleet recently acquired by The Babb Company, Inc. from LAI in Rome, have been sold and delivered to Trans Iranian Airways.

Two Lockheed L749 Constellations have been purchased from KLM by Aviation Financial Services, Inc., New York. The two aircraft will be leased to Pacific Northern Airlines.

MILITARY AIRCRAFT

When no commercial airfreighter big enough to carry two General Electric transformers could be found, a USAF Globemaster was pressed into service to haul the two 7½ foot high units from Warner Robbins Air Force Base, Georgia, to a rocket test station in California. The transformers, components of two load center unit substations for a new rocket testing facility of Convair Division, General Dynamics Corporation, weighed 9,000 and 4,500 pounds.

Replacing two scheduled flights from Dover Air Force Base, Delaware, to Burtonwood, England, a Boeing YC-97J Turbofreighter flew a cargo load of two C-54s across the Atlantic nonstop in a quarter of the time required of the C-54s.

CHARTER

Lambert Brothers Ltd. London, reports that the trouble in the Middle East has changed the charter picture completely. New business is very "unwilling to come forward, particularly where transport is required between the United Kingdom-Continent and the Near and Far East." It is along this route that the majority of ships' crew movements take place. The temporary absence of this type of enquiry, Lambert points out, "has caused a noticeable void in the market."

On this side of the Atlantic, Dyson Air Freight reports that "more and more requests for quotations on term charters are being received in the market every day." The areas involved are Europe, North and South America, and Pacific-Australasia. Says Dyson: "These are long range programs and it is likely that some few will come to pass before 1957."

IATA

Eleven scheduled airlines operating between South America and Europe are working out cargo rates over the South Atlantic route for 1957-58. Existing rate agreements for scheduled services between South America and Europe expire March 31, 1957. Recommendations for tariffs from April 1 for the following 12 months are being worked out and will be submitted to all interested governments for final approval. Host at the meeting, which is taking place in Buenos Aires, is Aerolineas Argentinas. In addition to the Argentine airline, the participating

carriers are Alitalia, Air France, BOAC, Lufthansa, Iberia, KLM, Panair do Brasil, Panam, SAS, and Swissair.

AIRPORTS

Miami International Airport reports that a total of 114,056,277 pounds of cargo was handled in the first nine months of 1956—an increase of 16,157,709 pounds. This included 87,264,815 pounds of cargo in international transit, representing a gain of 817,752 pounds, and 26,781,462 pounds of domestic cargo, an increase of 5,239,957 pounds.

The Amsterdam City Council has voted a 180 million guilder appropriation for the expansion and modernization of Schiphol Airport in preparation for the soon-to-come Jet Age. According to word from Holland, the expansion will take eight years to complete. The first of four 10,000-foot runways will be open for operation by 1960, at a time when KLM is scheduled to receive its first Douglas DC8 Jet transport.

In September Seattle-Tacoma International Airport showed gains in both air freight and air express handlings as compared with the same month a year ago. Freight handlings, import and export, rose fully 37%—from 2,105,238 pounds to 2,887,304 pounds. Express handlings, which were 7% higher, went up from 236,674 pounds to 254,063 pounds.

NEW OFFICES

Brazilian (REAL)

Jacksonville, Florida—1709 Prudential Building; Clovis N. de Silva, manager.

Sud-Est

New York—Suite 2230, 500 Fifth Avenue; LOngacre 4-6870; Claude J. Teyssier, general representative in North America.

IATA

Montreal—Head Office, Terminal Centre Building, 1060 University Street; UNIVERSITY 6-1011; Cable, IATA Montreal.

CAB

On the heels of the Civil Aeronautics Board's recent reaffirmation of its award of the New York-Miami route to Northeast Airlines, Delta Air Lines requested the CAB to cancel the award and turn the route over to Delta. In its Petition for Reconsideration, Delta stated that the opinion handed down in the New York-Florida case "patches up illogical reasoning with clichés." The Atlanta-based airplane declared that the opinion "virtually ignores the basic question of which applicant can render the best service to the traveling and shipping public."

"The Board owes it to the Congress, to the airline industry, and to itself—and it

even owes it to the New England interests who so understandably but so mistakenly thought they were working for the best interests of their public—to reconsider with care the opinion and conclusions which three of five members reached," the Petition stated.

Examiner Paul N. Pfeiffer has recommended the award to North Central Airlines of a north-south route between Grand Forks, North Dakota, and Omaha, Nebraska. Intermediate cities of the route are Fargo, North Dakota; Watertown, Brookings, Sioux Falls, and Yankton, South Dakota; Sioux City, Iowa; and Norfolk, Nebraska.

BOOKS

Hans Hellmut Kirst's *Forward Gunner Asch* (Little, Brown & Co.; 368 pages; \$3.95) is the second novel devoted to Sergeant Asch of the Germany Army, this time at war on the Russian front where the Nazi war machine has ground to a halt. Asch is no whit less funny in this book than in the last, his humanness punching gaping holes in Prussian severity. Kirst is at his best when he concentrates on farce, but is thin when he turns briefly to moralizing. When Han Suyin wrote *A Many-Spindored Thing*, her reputation as a writer became established. Her latest novel, . . . *And the Rain My Drink* (Little, Brown & Co.; 306 pages; \$4.00) displays the same warmth and compassionate understanding which flowed through the pages of her previous book, drawing on the conflicts and tensions in modern-day Malaya for her canvas. Miss Suyin has endowed her lush novel with an interesting assortment of characters—British and Malayan—in the swift-running current of intrigue and race-consciousness. The author has not let her fans down. . . . Frederic Wakeman is at pains to use all the ingredients of best-seller success in his newest novel, *Deluxe Tour* (Rinehart & Co.; 403 pages; \$3.95). Nine Americans go on a luxury tour of some of Europe's most glamorous cities, under the guidance of a lovely French girl. Each character has a personal problem, and each problem becomes neatly resolved. A competent job by the author of The Hucksters.

W. Grey Walter's *The Curve of the Snowflake* (W. W. Norton & Co., Inc.; 282 pages; \$3.75) is science-fiction at its best. The author, an American-born physiologist in England, has produced a thoroughly enjoyable book which mixes an ingenious plot, some fascinating characters, and exciting ideas in good measure. Once again is a novel built on the defeat of time and space—but we suggest you see for yourself how Walter handles the theme. You'll get a kick out of it. . . . The Japanese bombing of the U.S.S. Franklin in the early spring of 1945 has passed into history, and since that day the story of the gallant padre of the aircraft carrier, Father Joseph T. O'Callahan, has been told innumerable times. Now, for the first time, Father O'Callahan relates his own story of the bombing in *I Was Chaplain on the Franklin* (Macmillan Co.; 153 pages; \$2.75). Inspiration on every page. . . . Lou Relchers is one of that small knot of flying pros whose exploits have become part of aviation history. His is a fabulous story in a fabulous era during which time he stopped long enough to pick up more than just a few decorations. It's all in *The Flying Years* (Henry Holt & Co., Inc.; 284 pages; \$4.50), keeping the reader hopping from adventure to adventure and from one part of the globe to the other. This is one of the better air-personality stories around.

In his *And What of Tomorrow* (Comet Press Books; 178 pages; \$3.00), George O. Robinson, an ex-newspaperman currently associated with the Atomic Energy Commission, writes of the human element in the now-split atom: the promise it holds in store for

(Continued on Page 33)

NEW EQUIPMENT FOR THE *Shipper & Carrier*

Cargo Tie-Downs

Brown-Line Corporation: The firm has announced the development and availability of a completely new line of cargo tie-down fittings for aircraft designed to anchor to aircraft standard floor seat track, in keeping with the trend of convertible passenger-cargo aircraft. This new line of tie-down fittings permits cargo loadings in aircraft originally built for passengers, or in sections of aircraft along with passengers. Made in three styles with acceptable load ratings of 2,000 pounds to 6,000 pounds per fitting, they are manufactured under patent license from Pan American World Airways. See Item No. 294, *Come 'n' Get It.*

Conveyor Equipment

Colson Corporation: A portable belt conveyor equipped with a self-powered elevating device is being introduced by the firm. A single-lever control adjusts the angle from horizontal to 45 degrees and a powered screw automatically locks the conveyor at the desired angle. Available as standard equipment on 20 and 22 foot length models, the lever controls a clutch mechanism which raises the unit when the belt moves in a forward position and lowers it when belt is reversed. The 14" wide three ply duck, rubber rough-top belt will handle items up to 30". For 30" to 45" operation cleats are supplied at no extra charge. The conveyor has an extra long overhang on the conveyor bed enabling the upper end of the conveyor to be moved well into a truck, over a low balcony, or through a window. This is achieved through a carefully designed pivot point which insures complete balance even when the load is concentrated at the upper end. Capacity is 150 pounds per package or 300 pounds fully distributed. The power tail feeder is self supported from the main unit and easily adjustable. The conveyor also is available in 10, 12, 14, and 16-foot lengths. On these shorter units, the self-powered elevating device is optional. Elevated discharge heights range from eight feet, one inch for the 10 foot unit, to 12 feet, seven inches for the 22 foot unit.

Rapids-Standard Co., Inc. An accurate traffic count on wheel conveyor lines is said to be assured with the new Rapistan automatic case counter. This new case counter carries totals to 99,999. Easy installation of the counter without tools or alteration of wheel pattern makes it possible to have an accurate count on several lines by switching from line to line as necessary. The counter can be positioned for flow counting in either direction and hooks quickly over the axles of a conveyor line when flow direction is changed.

Industrial Trucks

Clark Equipment Company: An 8000-pound capacity model with dual drive wheels, the EUT-8024, is the newest addition to Clark, line of battery powered fork-lift trucks. A turning radius of 85 inches, aisle for right angle stacking

(including 48-inch long load) of 148½ inches and overall length of 133 inches are dimensional features of the machine. With four speeds forward and four reverse, it will travel loaded at 5½ mph and climb a 10% grade. Power comes from a dual field, high-torque motor which provides maximum efficiency under the most severe operating conditions, Clark claims. A finger-tip directional control lever on the steering column controls first speed in each direction and mechanically cuts off power and locks in neutral when the operator's seat is empty. Second, third and fourth speeds are attained by a foot accelerator operating a master control switch. The control panel includes magnetically operated contactors providing automatic acceleration with preset time delay between each point of power. Plugging and timing relays eliminate excessive current in drive motor during reversal of truck. A switch operated by the brake pedal cuts off power to drive motor when hydraulic brakes are applied.

The EUT-8024 has three independent braking systems. In addition to hydraulic brakes, a "deadman" brake mounted on the drive motor armature applies automatically when the operator leaves his seat. The machine also can be braked by reversal of power in first speed. An automatic "tilt-lock" valve in the hydraulic system prevents "drifting" of the uprights under heavy loads. The hydraulic system is controlled by a Vickers "feather-action" spool type sectional valve with built-in pressure relief. Telescopic, axle-mounted uprights are of heavy section alloy steel channel.

Weight of the truck is 11,580 pounds with a lead acid battery and 11,378 pounds with an alkaline battery.

Elwell-Parker Electric Company: A new 10,000 pound capacity, electric-powered high-lift platform truck, designed for general rugged handling operations, has been developed by the company. Known as the E13-10, the new truck features two-wheel drive, six-wheel steer, is hydraulically actuated, and is of the end-control, stand-up, non-telescopic type. For maximum service under even the most severe operating conditions, the new model has a frame built of heavy steel plate formed and electrically welded. Center sill type construction is used, with all major units attached directly to the single reduction worm and wheel with integral differential. Equal length, full floating drive shafts are splined to the differential housing at one end and to drop forged, universal steering joints at the opposite end. The universal joint is in turn splined to the drive wheel clutch plate which is doweled and bolted to the drive wheel. A hydraulic lift cylinder is used to operate the platform lift. A sep-

arate electric motor with an integral hydraulic gear type pump supplies the lift cylinder, and the system operates at pressures below 12 psi. A check valve is built into the lift cylinder to prevent sudden dropping of the load should the system rupture at any point. In addition, an automatic unloading device prevents damage when the platform reaches its limit of travel or in the event it strikes an obstruction. See Item No. 295, *Come 'n' Get It.*

Raymond Corporation: An electric truck with revolving forks has been designed to serve a dual purpose. The revolving feature allows small parts to be dumped from steel boxes into hoppers. When the forks are in a normal position the truck is used to stack boxes in storage areas. A hydraulic motor powers the revolving mechanism through a chain driven sprocket and gear reduction. The forks move in a continuous 360° arc in both clockwise and counterclockwise directions. Movement is controlled by a hand operated hydraulic valve. Oil pressure to operate the revolving fork arrangement is developed by a single motor and pump which also furnishes power for the hydraulic lifting arrangement. The whole assembly is reported to be compact and does not detract from the efficiency of the truck which is especially designed to operate in narrow aisles. The device can be installed on any 4,000 pound capacity Straddle Truck made by Raymond.

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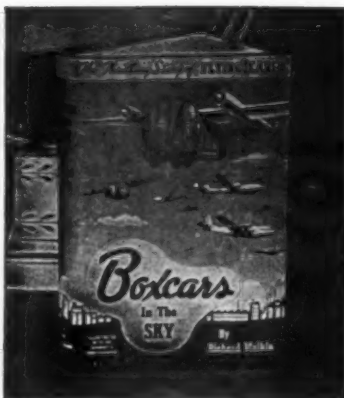
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Mailing Equipment

Pitney-Bowes, Inc.: A versatile, high-speed "envelope stuffer" that can be set up in minutes and operated by the average office worker with "perfect contents" accuracy was introduced in New York at the National Business Show. Called by the manufacturers "a revolutionary new ma-



chine for automatic mail inserting," the device collates and nests enclosures, opens and stuffs envelopes, counts, seals and power-stacks the mailing, and optionally imprints postage in one continuous operation at output speeds up to 6,000 an hour. The machine features fast, flexible, easy operation and, according to Pitney-Bowes, can bring major savings in time and labor to any mailer. With its "Model 3100 Mail Inserting Machine" and optional postage meter, the company states, one girl can do the work of many in meeting a variety of mailroom needs, eliminating peak work loads and overtime, and making important deadlines.

The inserter opens the flaps and throats of envelopes, inserts into them as many as four automatically collated or nested enclosures, and closes, seals and counts the mailing pieces. Then, by means of a power-driven conveyor belt, it stacks them in a large-capacity stacker. As part of the same continuous operation, an optional postage meter attachment imprints the envelopes with a meter stamp or other postal indicia.

Although one operator in a 7½-hour machine day can easily produce 30,000 to 40,000 stuffed pieces ready for mailing, according to the company, substantial savings in costs and clerical drudgery can also be achieved by using the inserter on short runs and small volumes, as well as large. One of the machine's special advantages is that the operator can set it up for a job rapidly and easily without a mechanic or tool kit. Minor adjustments are made by the turn of a knob, and a straight-line, self-centering feed eliminates alignment problems. Most jobs can be set up in a few minutes. Two other outstanding features are the machine's extraordinary accuracy and jamming protection. Automatic signals prevent misfeeds and insure "perfect contents" for each envelope, and a detector prevents jams, faulty inserting and the mutilation of enclosures.

The inserter offers variable speed control, making difficult jobs possible through the dialing of slower cycles. It can accommodate a wide range of material sizes, including envelopes from 6 by 3¼ inches up to 12 by 6 inches, and handles such varied material as open-window envelopes, end-folded telephone and utility bills and items of different thicknesses, as well as many novelty shapes, sizes and folds. Another feature is "one-side control," enabling one operator to handle the complete operation on the inner side of the machine's "L"-shaped design. The company reports a backlog of orders that will absorb its production for five months. It is offering parts and repair service through all of its 289 service points throughout the United States and Canada.

Packing Equipment

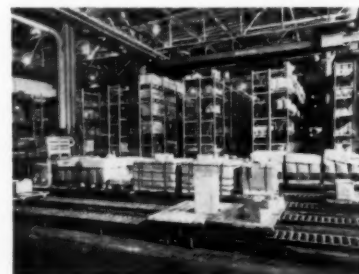
Dutch Brand Division, Johns-Manville: A new 250 pound tensile strength strapping tape with a vinyl plastic backing has been announced. This new pressure sensitive reinforced tape is reported to be ideally suited for packaging, package reinforcing, bundling, palletizing, unitizing, tear stripping and where extra strength at low cost is desirable or necessary. Made with strong versatile vinyl film backing, this new Dutch Brand No. 400 Strapping Tape resists abrasion, salt water, acids, alkalis and is rust; mildew; water; oil; and grease-proof. The tape's exceptional holding power (68 to 72 pounds per square inch) assures the user positive adhesion, the company says. Because of its flexibility the tape conforms to irregular surfaces and is easy to apply by hand or with standard taping machines. It will not cut into the edges of packages, Dutch Brand claims. The tape can be used in shipping departments, warehouses, by overseas shippers, lumber yards, steel mills, metal fabricators, box manufacturers, rail shippers, furniture and appliance manufacturers, component part manufacturers, and in many other industries where heavy, bulky, or irregular shaped items must be securely packaged or banded together. The tape is available in standard widths starting from ¼" in 60-yard rolls. Longer lengths are available upon special order. See Item No. 296, *Come 'n' Get It*.

St. Regis Paper Company: St. Regis will commence limited commercial production of its new expanded plastic container. This new container, in which paper and foam plastic are combined and produced in continuous form, retains high compression strength under conditions of serve humidity. Equipment is now being installed at the Mt. Wolf, Pennsylvania plant of St. Regis' subsidiary, Superior Paper Products Company. This equipment extrudes the foam plastic and laminates the paper to it. The sandwich-like paper and plastic combination will be converted into containers at the Mt. Wolf plant and at other converting plants of St. Regis. This expanded plastic container is said to meet the requirements of shippers for a container which is light enough in weight to keep shipping charges low and yet strong enough to withstand long distance shipping under the high humidity conditions of refrigerator cars. It provides excellent insulation qualities and high moisture vapor protection St. Regis says.

Company executives stated that the new container should compete favorably in strength and economy in those fields in which expensive wooden containers are now being used.

Storing

Palmer-Shile Company: New designed adjustable pallet racks are now in manufacture. For use in plants and warehouses, the



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racks may be easily assembled without bolting or welding. Adjustable members lock in place at the desired level, and can be assembled in single, double or multiple sections to any desired height. An important feature of the new racks, stressed by the manufacturers as giving rigidity and freedom from sway, are double slots set at an angle on the vertical uprights. Braces are welded between the front and back uprights at the depth specified. Racks are built to specifications to store any kind of material, light, heavy or bulky. They may be galvanized for outside use. Illustrated are racks in an automotive plant receiving area 24 feet high, serviced by crane with forks. Note different levels of adjustable sections supporting pallets.

BOOKS

(Continued from Page 30)

man if intelligently used. A glimpse into a fabulous future . . . The third and final volume of **A Military History of the Western World** (Funk & Wagnalls; 666 pages; \$6.00) is devoted to that period spanning the American Civil War and World War II. Author J. F. C. Fuller has followed up his two previous volumes in this trilogy on the same note of brilliance as previously shown. This history is certain to be ranked top in its field. It's a must for the serious reader . . . Dr. John H. Frederick does an excellent job showing how the impact of the traffic department, once the industrial orphan, can be registered on all levels of industry. In his **Traffic Department Organization** (Chilton Co.; 142 pages; \$6.00), the author discusses the functions of traffic management, responsibilities, maintenance of centralized control, etc., utilizing case histories of small and large firms to illustrate the handling of particular traffic problems.

Many of those who read Herbert Kubly's last book, *American in Italy*, have looked forward to his next effort. In his latest, **Easter in Sicily** (Simon & Schuster; 296 pages; \$3.95), Kubly maintains a high level of writing, although we are inclined to rank the book a mite lower than his previous prize-winner. In the author's hands, Sicily emerges a fascinating land, at once stark and warm in beauty. He has a sure hand at painting local characters in print; and together with his descriptions of places and things, wrapped in history and legend, Easter in Sicily looms as an absorbing, superior work. . . . An interesting look into the world of commercial aviation and airline men is provided by John G. Burnett in **Company Man** (Harper & Brothers; 248 pages; \$3.50), which falls under the general heading of a business novel. Bob Franklin—a naive but nice guy—is ad manager of Farnsworth Airlines and is out to do a noble job, but he soon finds himself entangled in office intrigue. Company Man is hardly of Executive Suite status, but Burnett's basic talent shows through in a number of passages.

Europe-bound? We hasten to recommend two new editions of established travel guides, different in purpose, similar in distinction. . . . **Woman's Guide to Europe** (David McKay Co., Inc.; 532 pages; \$4.50), edited by Eugene Fodor, is a must for milady. Now in its fourth revised edition, it plays the role of adviser par excellence for eager, curious, shopping-minded traveling ladies. It covers 21 countries. A series of engaging articles for women occupies almost half the book. Indispensable, we say. . . . Harvey S. Olson's **Aboard and Abroad** (J. B. Lippincott Co.; 672 pages; \$4.95) is a well-organized volume which anticipates all the needs of the air or sea traveler—and then some. Concisely written, Olson nevertheless has omitted nothing. Third edition.

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264 Newly revised consular documentary requirements and charges, as prepared by Air Express International.

265 Shippers to Germany will be interested in Air France's new bulletin showing how next-day deliveries to Munich, Stuttgart, Nuremberg, Berlin, and other points are achieved.

266 *How to Engineer Corrugated Shipping Boxes*, a newly revised edition of the 24-page booklet which describes each step in the development of a specific carton for a specific job.

267 *Workhorses With Wings*, illustrated booklet which dramatically relates the story of American Airlines' coast-to-coast freight service. Extremely interesting.

268 *Why Air Cargo?* — a folder, designed by KLM, which provides information of value to the air shipper.

269 A new brochure which details KLM's new DC-6A transatlantic all-cargo service.

270 This will be of interest to you — Pan American World Airways' test designed to help the shipper decide how high air cargo can lift profits.

271 Interested in South America? Write for Panagra's bibliography on the southern continent — *Books About South America*.

272 Newly revised Air Freight Memorandum Tariff of TWA, showing domestic air freight rates and featuring a simplified method of computing charges.

273 *How to Get More for Your Shipping Dollar*, a handsome brochure by Flying Tiger Line providing information on the all-cargo carrier's regular and deferred air freight services.

New Items This Month

It is the policy of the editors to retain each *Come 'n' Get It* item for a period of three months.

The items added this month are numbers 272 to 296 inclusive.

274 Air France's new brochure detailing cargo rates between New York and Mexico and Central America.

275 *The Air Express Story*, an eight-page illustrated brochure which relates the background and current services of REA's Air Express Division.

276 *Uncle Sam's Best Buy*, an interesting booklet outlining the outstanding record of the scheduled airlines of the United States.

277 *Pressed for Time?* — another in REA's series of brochures underlining the value of air express.

278 Elwell-Parker's new four-page brochure illustrating and describing its Cascade load clamp, slide shift and rotating attachments for its line of powered industrial trucks.

279 Four-page bulletin giving specifications and drawings of Automatic Transportation Company's Model L.O-2 low lift platform electric-driven industrial truck.

280 Brochure on a new tray-type expendable pallet, the Model P. Claimed to have capacities up to a ton, stack-loaded four high, with important economies.

281 *Blue Book of Packaging*, Gerrard Steel Strapping's new 36-page book containing 130 photos of interesting and unique strapping applications as well as a complete review of the company's products.

282 Air France folder providing specific commodity rates on tools, machines, and electrical equipment.

283 Air France folder providing specific commodity rates on surface vehicles and aircraft.

284 Air France folder providing specific commodity rates on tobacco samples.

285 Air France folder providing specific commodity rates on musical instruments, music records, sporting goods, and toys.

286 Air France folder providing specific commodity rates on furs, leathers, etc.

287 Air France folder providing specific commodity rates on semi-manufactured products: metals (ingots); plastics.

288 Air France folder providing specific commodity rates on chemicals and related products.

289 Air France folder providing specific commodity rates on silverware, other cutlery, ceramics, and glassware.

290 Air France folder providing specific commodity rates on textile materials and wearing apparel.

291 Air France folder providing specific commodity rates on optical goods and photographic goods.

292 Air France folder providing specific commodity rates on scientific and precision instruments, including timepieces.

293 Air France folder providing specific commodity rates on personal effects and household goods.

294 Literature on a new line of cargo tie-down fittings for aircraft designed to anchor to standard floor seat track.

295 Information on Elwell-Parker's new 10,000-pound capacity electric-powered high-lift platform truck, designed for rugged handling operations.

296 Information on a new 250-pound tensile strength strapping tape with a vinyl plastic backing for package reinforcing, palletizing, unitizing, etc.

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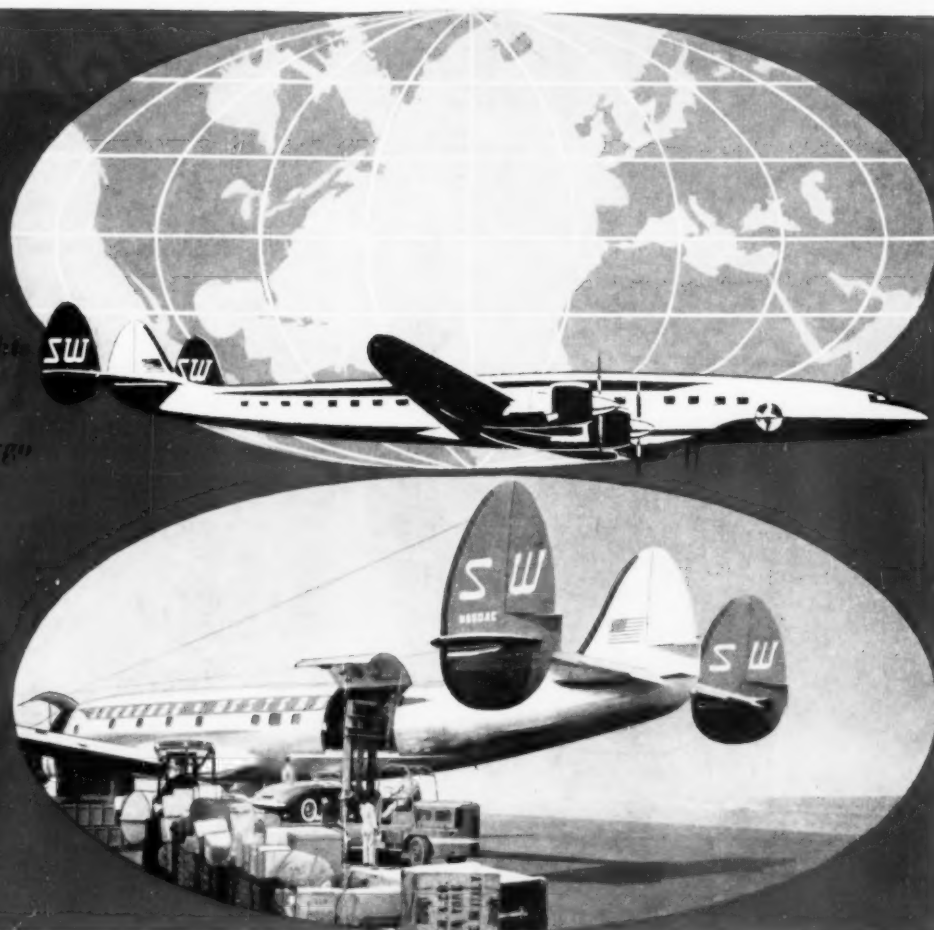
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